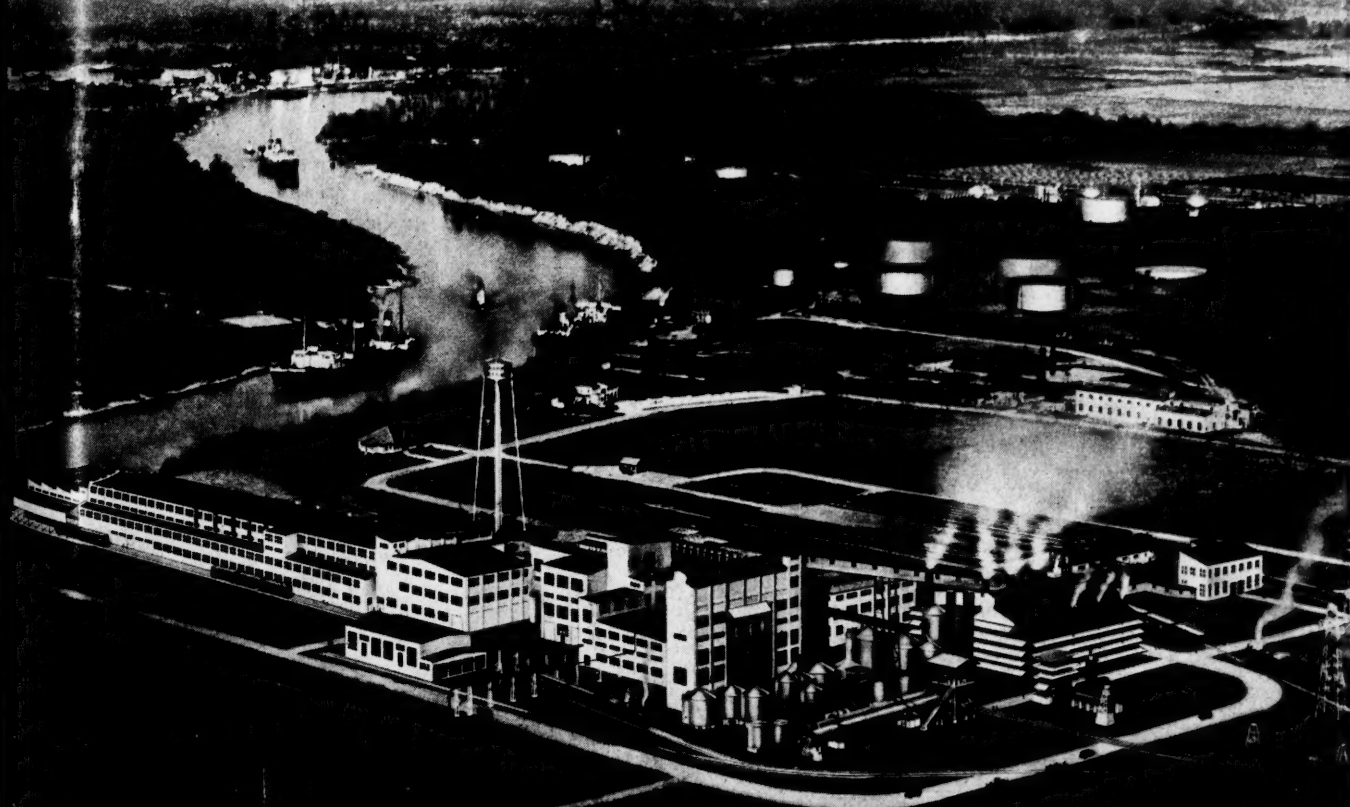


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SCIENCE AND INDUSTRY



NATIONALLY KNOWN INDUSTRIES EXPANDING IN THE SOUTH

National awareness of the industrial opportunities of the South is becoming increasingly evident.

The Champion Paper and Fibre Company mill near Houston, Texas, is an example of the huge plants now being established in this section and built there "because of the closeness of large stands of pine timber, and supplies of sulphur, lime, salt and natural gas."

Two leading industrialists who are undertaking large expansions in the southern states point out in articles in this issue the rapidly growing market of the South and its vital assets that beckon industry.

NOVEMBER, 1940

MODERN CONSTRUCTION *DEMANDS*

- *Dependability*
- *Economy*
- *Long Life*



-get ALL 3 with
AMCRECO
Pressure Creosoted
PILES and TIMBER

AMERICAN CREOSOTING COMPANY

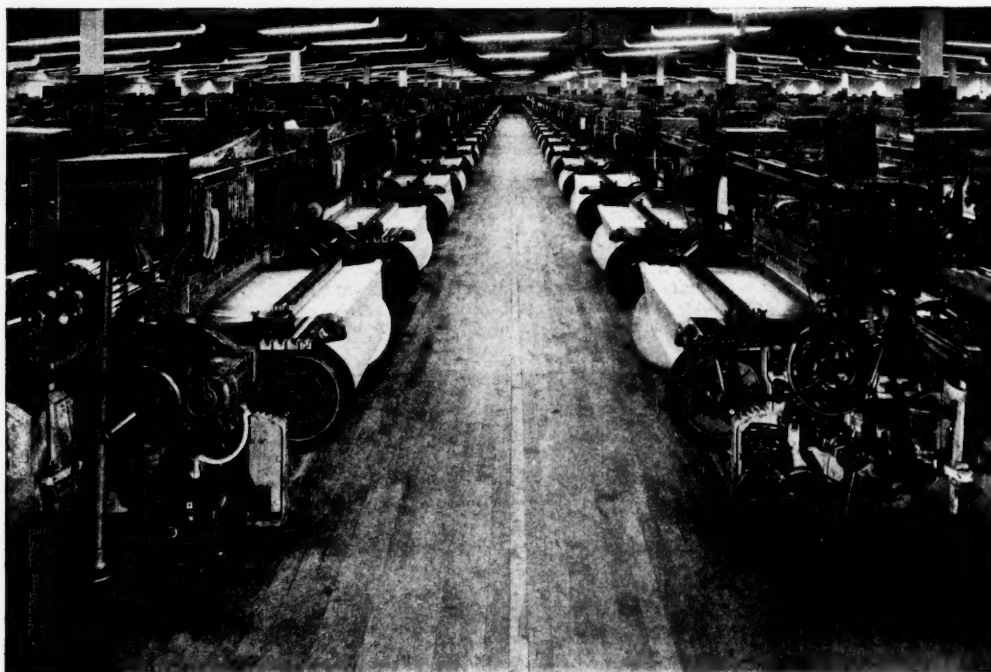
COLONIAL
CREOSOTING
COMPANY
INCORPORATED



GEORGIA
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EXPERIENCE SAYS:

"Better Choose
Northern Hard Maple"



Hard Maple floor in this modern plant of Carter Fabrics Corporation, South Boston, Va.

Hard Maple in plants built in the 80's—Hard Maple in plants built last week!

Why? Because this superior flooring proves itself under all conditions the most satisfactory flooring for mills. The older your plant, the more proof you've had of its lasting economy. The more *modern* your plant, the more you want Maple.

For only Hard Maple combines so many advantages. *Protects workers*—its resilient comfort retards fatigue; its dry warmth and sanitation guard health. *Protects machinery*—creates no dust to injure delicate bearing surfaces. *Speeds up traffic*—both trucks and men move faster with less effort on this smooth-surfaced floor.

Lowers service costs—properly finished, brushing alone cleans Maple; it doesn't catch lint. Maintenance is easier, because Hard Maple doesn't splinter; offers unequalled resistance to abrasion, even under the wear of heavy trucks. Simplifies alterations, too.

On all counts Maple is modern. Specify trademarked **MFMA** Maple, and make sure of all *Northern Hard* Maple, and strict association grading. In strips or blocks—ask your architect.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1797 McCormick Building, Chicago, Illinois

See our Catalog data in Sweet's, Sec. 11/78. Write for leaflet on heavy-duty finishes for old or new floors.

Floor with **MFMA** Maple

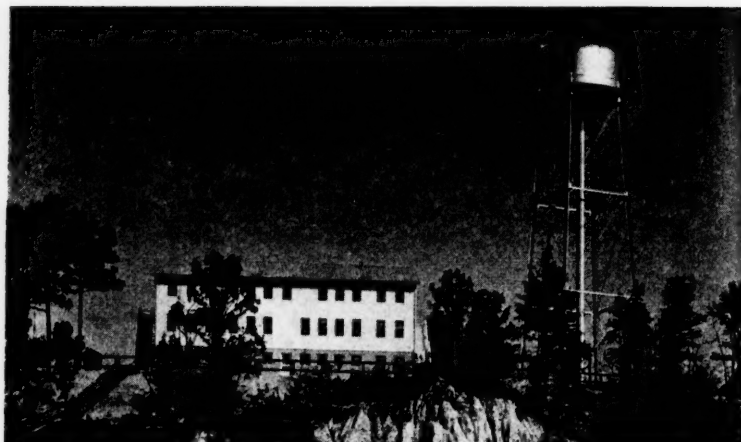
REG. U. S. PAT. OFF.

(N O R T H E R N H A R D)

GRAVITY WATER PRESSURE for Southern River Control Projects



Above, 50,000-gal. elevated tank supplying water to six dormitories and 130 houses at Pickwick Landing. Right, a tank of the same capacity serving six dormitories, 45 houses, the hospital and cafeteria at Hiwassee Dam. Below, two 100,000-gal. tanks providing gravity water pressure at Gilbertsville Dam. One serves the camp and the other a village of 74 houses.



The building of a river control dam is a big project. It requires the services of an army of workmen and a large supervisory staff for months. Dam sites are usually at out-of-the-way places, requiring camps for construction forces and permanent living quarters for the operating staff.

Elevated steel tanks have proven an economical and dependable means of providing water pressure at the Tennessee River control projects. Operating and maintenance costs are at a minimum, and ample water supply is assured for the entire camp. Write for prices.

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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly by the
MANUFACTURERS RECORD PUBLISHING CO.
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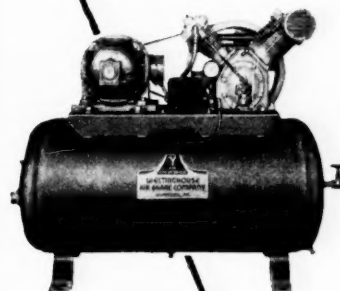
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Efficient
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Durable

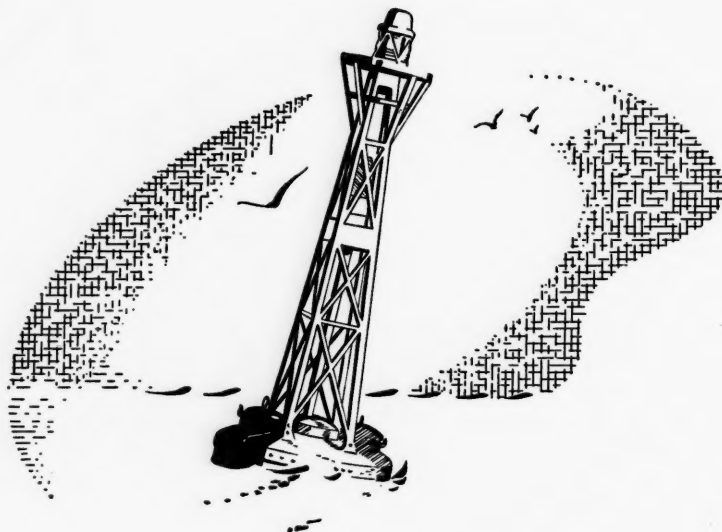
Here is one of the
many types and sizes



Type "Y"
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Two-cylinder, two-stage, air-cooled, for continuous operation against 900 lbs. pressure, sizes 3.6 to 41 cu. ft. Controlled combined pressure and splash lubrication. Unloader interlocked with lubricating system to prevent delivery of air when oil supply is depleted. Low power cost. Motors for any commercial circuit. Mounted complete on tank as shown, or on bed plate for sill installation. Catalog 2051. Write for prices.

Westinghouse
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.



AMERICAN BUOYS ARE NOW TALLER; ALSO BRIGHTER

A buoy is a lantern on a tower on a floating can.

The bigger the lantern, and the higher the tower, the better the buoy. You see it easier, farther.

So the buoy experts set out to see what they could do about that with Aluminum.

They had two facts to work with. One fact was that certain strong alloys of Alcoa Aluminum are resistant to sea-water corrosion. And the other was, and is, common knowledge: Aluminum weighs only one-third as much as traditional structural metals.

So the buoy experts figured out that a three-burner lantern of Aluminum ought not to weigh much more than a single-burner lantern of heavy metal. And they built the big lantern and they were right.

And that led them to figure on the tower, itself. They concluded that by changing to Aluminum they could safely increase the height of tower from 16 to 25 feet, giving another mile or so of visibility. They built the tower, and they were right about that.

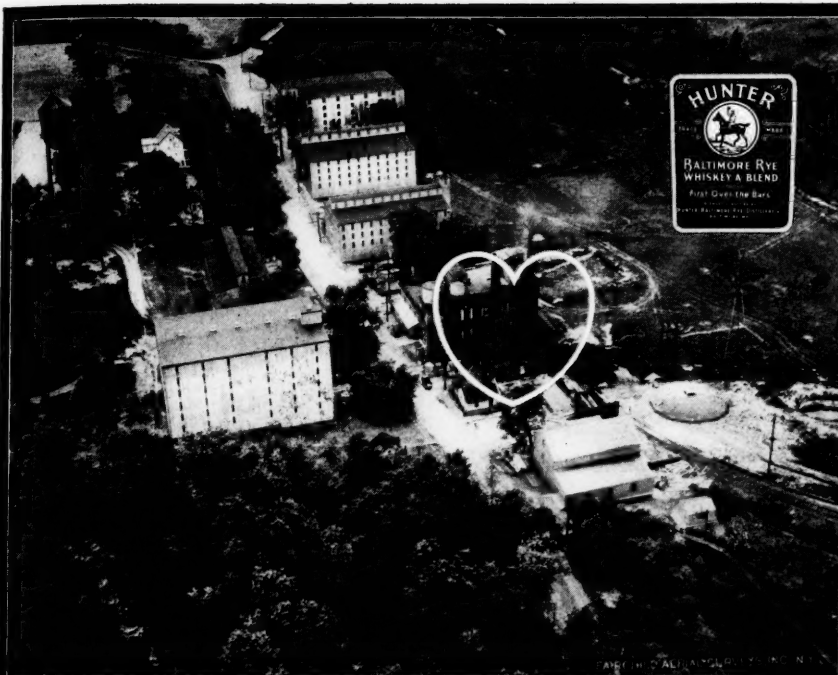
Then they let the buoy ride the waves off Charleston for three years, and they were still right. Now they're building buoys of Alcoa Aluminum, in dozen lots.

And that's all there is to the story.

Except the moral: There's nothing mysterious about using Alcoa Aluminum profitably. It is just a matter of fitting the facts to your own problem. Aluminum Company of America, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA · ALUMINUM



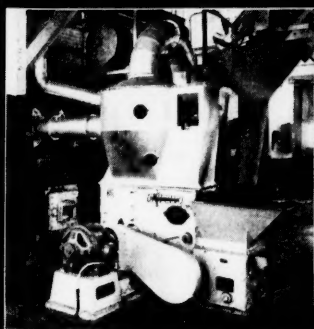
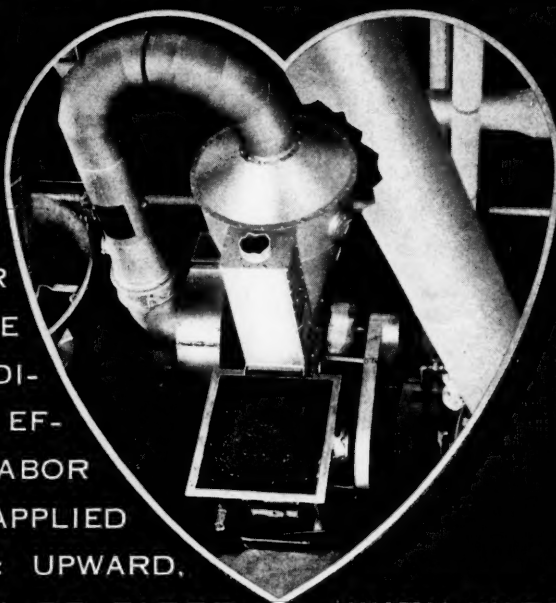
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OF ANY
DISTILLERY
IS ITS
BOILER
ROOM

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**NEWPORT NEWS SHIPBUILDING
AND DRY DOCK COMPANY**

NEWPORT NEWS, VIRGINIA

PRODUCTION BLOCKED BY A SLUG OF WATER

A Case Story

**SOLVED
WITH
PREVENTIVE
MAINTENANCE**

TOMORROW—hundreds of plants may face a case like this: A mid-western manufacturer was suddenly swamped with orders. The plant had a good reserve capacity—yet, push as the management did, it failed to get the output needed.

The boilers and machinery were in excellent shape—but the steam lines were sluggish. The ailment was a common one—a condition that's quickly corrected with proper equipment.

That's how Preventive Maintenance entered the case. For, it's the only sure way of solving piping problems and keeping them solved. This simple technique guides you in installing and caring for pipe lines correctly; it helps you choose the right valves and fittings for every service.

This case shows how Preventive Maintenance works. While the management raved, the Superintendent put his hands on the trouble. The machines were not only slow in heating up, but they wouldn't stay hot. The drainage system was inefficient—it failed to remove condensate rapidly enough to keep the machines at maximum temperature.

The backlog of orders haunted the

Superintendent. He saw that more than ordinary maintenance was necessary. "The Crane man," he said as he reached for a phone, "will help us solve this quickly and surely."

The two men reviewed the situation. To run the machines at top speed meant keeping them at maximum temperature. Condensate would have to be drained as rapidly as it formed. The correct solution, as Preventive Maintenance counseled, involved re-designing of the drainage system, and installing a Crane Inverted Float Trap on each machine.

Results: The condensate trouble was banished. Production was immediately doubled. Another user of piping knows the value of Preventive Maintenance. Also, knows that the best way to get most from piping maintenance dollars is to call in the Crane Man. Because, backed by Crane experience and the great Crane line of valves and fittings, he offers the means of a successful Preventive Maintenance program.

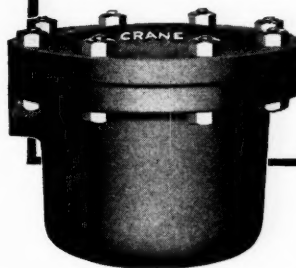
*This case comes from the personal experience of W.F.C.
—a Crane Representative in the Kansas City Branch*

YOUR STEAM LINES KEPT HOT AND DRY WITH CRANE TRAPS

You are not getting the maximum heat and power from steam if your lines are not properly drained. You are straining the piping, shortening the life of valves, exposing steam-operated equipment to serious damage when condensate is not removed.

In steam lines up to 600 pounds pressure, the wasteful and damaging effects of condensate are completely eliminated with Crane Inverted Open Float Steam Traps. These sturdy, simple, and low-cost traps will pay for themselves many times over. Once installed they require minimum attention—yet, automatically, stop steam waste, step up efficiency.

For pressures up to 200 pounds, the Crane line of No. 981 traps will give maximum protection against condensate troubles.



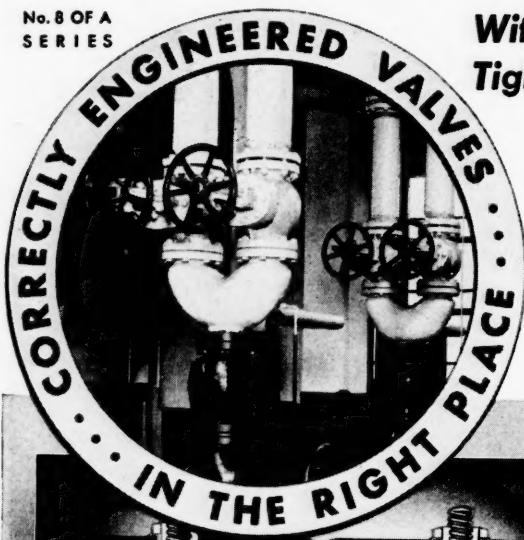
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No. 8 OF A
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LUNKENHEIMER Iron Body GATE VALVES

... ARE "CORRECTLY
ENGINEERED" FOR
MAXIMUM ECONOMY
ON THE JOB!

● You don't have to be a valve specialist to recognize "engineered superiority" in Lunkenheimer Iron Body Gate Valves. Even a casual observer will immediately be struck by their heavy, rugged construction and the obvious quality of the castings employed. Every detail, even to swing-bolts and built-in gland supports which facilitate repacking, bespeaks meticulous care to design a valve that will save the user time and money over long periods of service.

Inside, however, is where Lunkenheimer Iron Body Gate Valves really "shine"! Take disc guiding, for example! Not only are the disc channels accurately machined, but the *guide ribs* as well . . . to extremely close tolerances. Chattering or dragging on seats is completely eliminated, assuring tight closure and longer seat and disc life. Exceptionally heavy, bronze seat rings screw into place with inner faces firmly backed up by the solid walls of the body. Discs are of true solid construction—cannot distort when subjected to temperature variations.

SEEING IS BELIEVING!

Space does not permit enumerating all the other important features of these popular valves which assure substantial reductions in maintenance expense and ultimate valve costs. Our distributor, however, will gladly do so. Ask him to take one entirely apart, so you can actually see the superiority our engineers have built into these valves.

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THE LUNKENHEIMER CO.

"QUALITY"

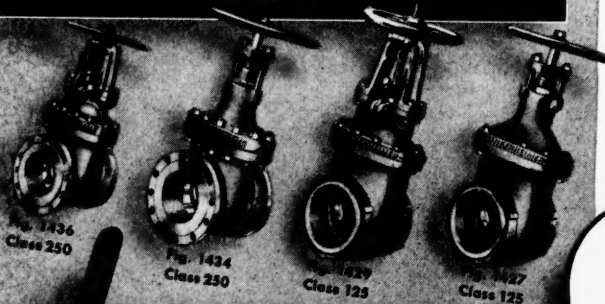
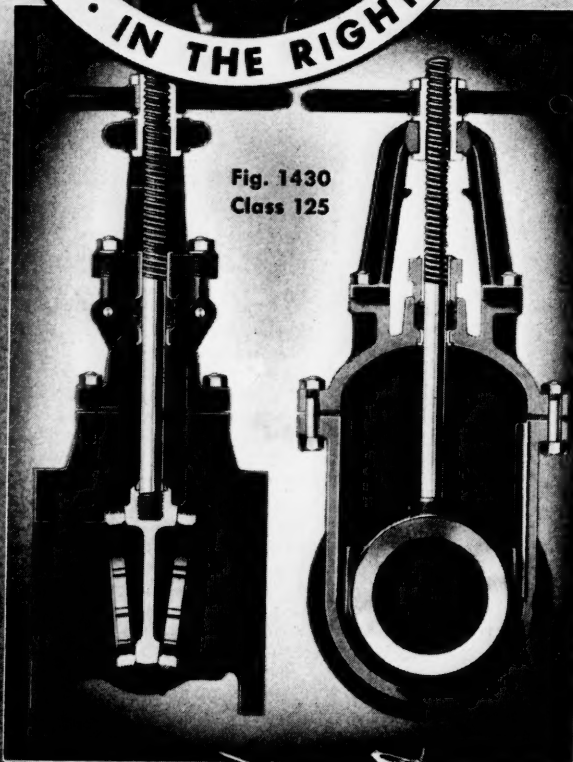
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Fig. 1430
Class 125



LUNKENHEIMER



Vacationists spend a million a day in Dixie

Every year thousands of vacationists spend many millions of dollars to get their share of sun tan under the Dixie sun.

People head in ever increasing numbers to picturesque playgrounds and spas from the Smoky Mountains to Key West. Hotel and resort operators and city officials have provided diversified sports, entertainment and other inducements to promote greater travel and increase tourist trade in this section.

This setting the stage for the great American vacation has become big business. To build and maintain the hotels, clubhouses, swimming pools, piers, sports arenas and roads—many steel materials are required.

Bethlehem is an economical source of supply for steel for any construction project. With the Maryland plant located on tidewater at Sparrows Point, Maryland, this company is well situated to serve the entire South, making shipments by either rail or water.

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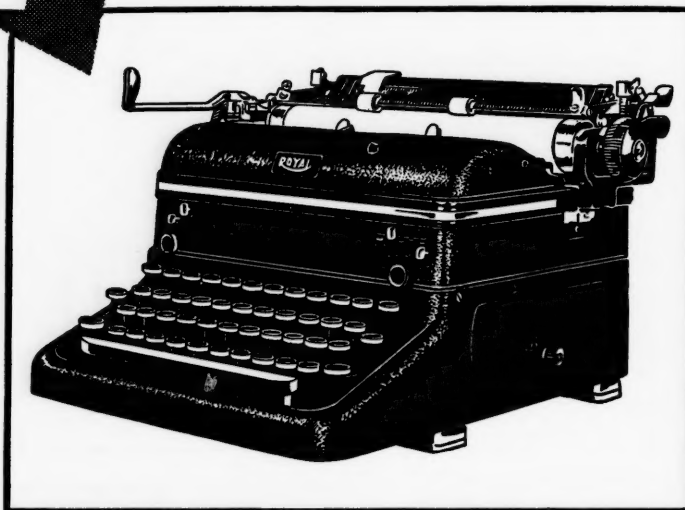
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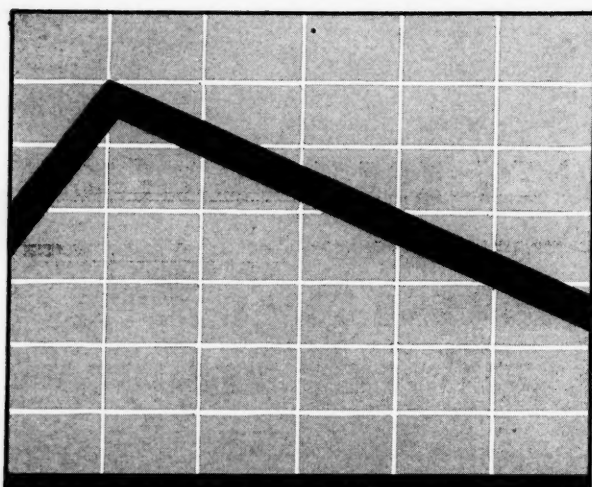
A low-cost machine that provides up-to-date records of receipts, expenditures, balances—by funds, accounts, schools and activities.

These are only a few examples of how today's Burroughs machines do the work in less time, with less effort, at less cost. For specific information about new Burroughs developments that would apply to *your* business, telephone the local Burroughs office, or write direct to—

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TODAY more than ever manufacturers must give careful consideration to the effect of taxes upon present and future operations. The tax trend in North Carolina is definitely *downward*. A far-sighted fiscal policy *has already provided* the highways, schools and other governmental facilities which many states must furnish in the future *through increased taxes*.

Cities and Counties have substantially reduced Property Taxes by effecting economies and because North Carolina is the **ONLY STATE** which maintains **ALL PUBLIC SCHOOLS FOR A MINIMUM EIGHT MONTHS TERM, EVERY FOOT OF PUBLIC ROAD WITHIN THE STATE, AND ALL PRISONERS DRAWING 30-DAY TERMS AND OVER, OUT OF STATE FUNDS.**

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petent Industrial Engineers will develop the facts for you in relation to your business. Write today. Industrial Division, Department of Conservation & Development, 2579 New State Office Building, Raleigh, North Carolina.



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Special Confidential Report to Executives

Send today for full details of all factors which determine profitable industrial operation as they apply to your business. Write the Illinois Development Council at Springfield, explaining the nature of your business, and listing any special problems you have in production, sales, distribution, or any unusual requirements in labor supply, type of building, raw materials, or other manufacturing needs. A detailed and comprehensive report will be prepared for you and submitted for your consideration. Your inquiry will, of course, be kept confidential. Write—

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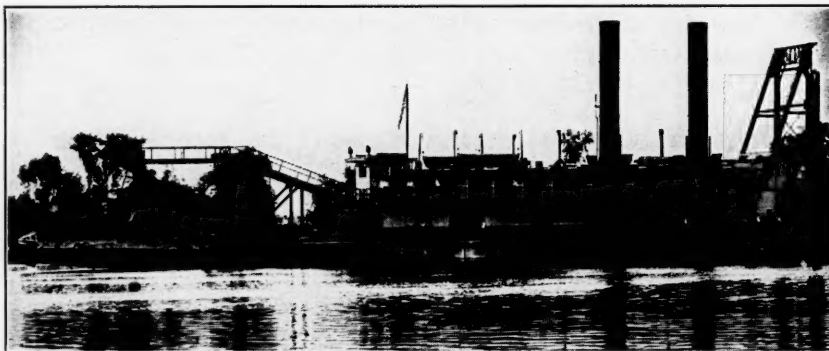
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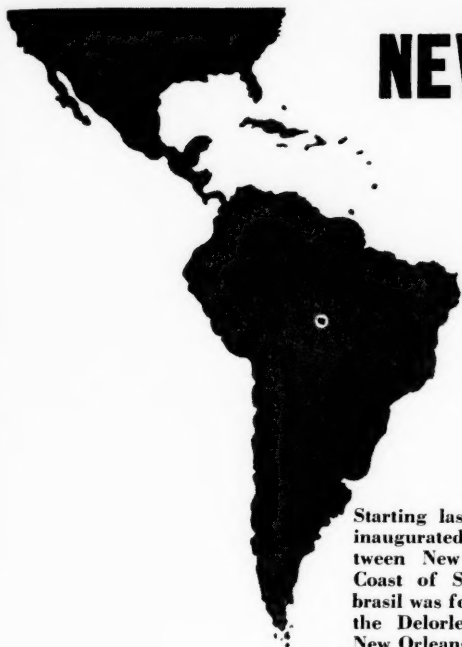
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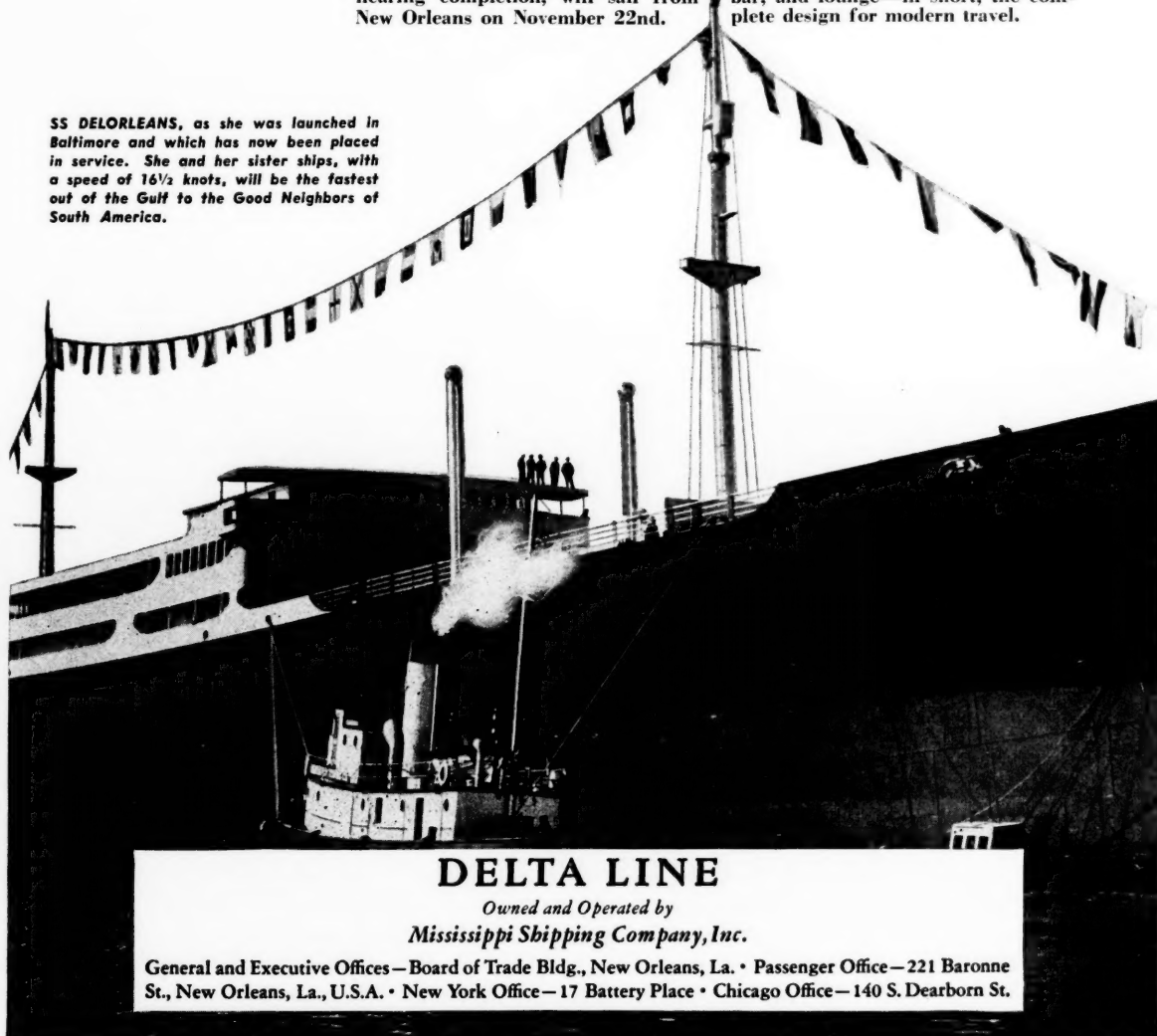
NEW 10 MILLION DOLLAR LINK WITH SOUTH AMERICA

Underwrites "Good Neighbor" Policy
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Starting last June the SS Delbrasil inaugurated a new era of travel between New Orleans and the East Coast of South America. The Delbrasil was followed by her sister ship, the Delorleans, which sailed from New Orleans on September 5th. The third ship, the Deltargentino, now nearing completion, will sail from New Orleans on November 22nd.

Cargoes will be speeded into and protected by the most modern holds, refrigerated compartments, and high speed booms. Special provision has been made in all three ships for the carrying of perishable and special cargoes. Passenger facilities include 26 spacious staterooms, a library, beautifully decorated dining rooms, bar, and lounge—in short, the complete design for modern travel.

SS DELORLEANS, as she was launched in Baltimore and which has now been placed in service. She and her sister ships, with a speed of 16½ knots, will be the fastest out of the Gulf to the Good Neighbors of South America.



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Mississippi Shipping Company, Inc.*

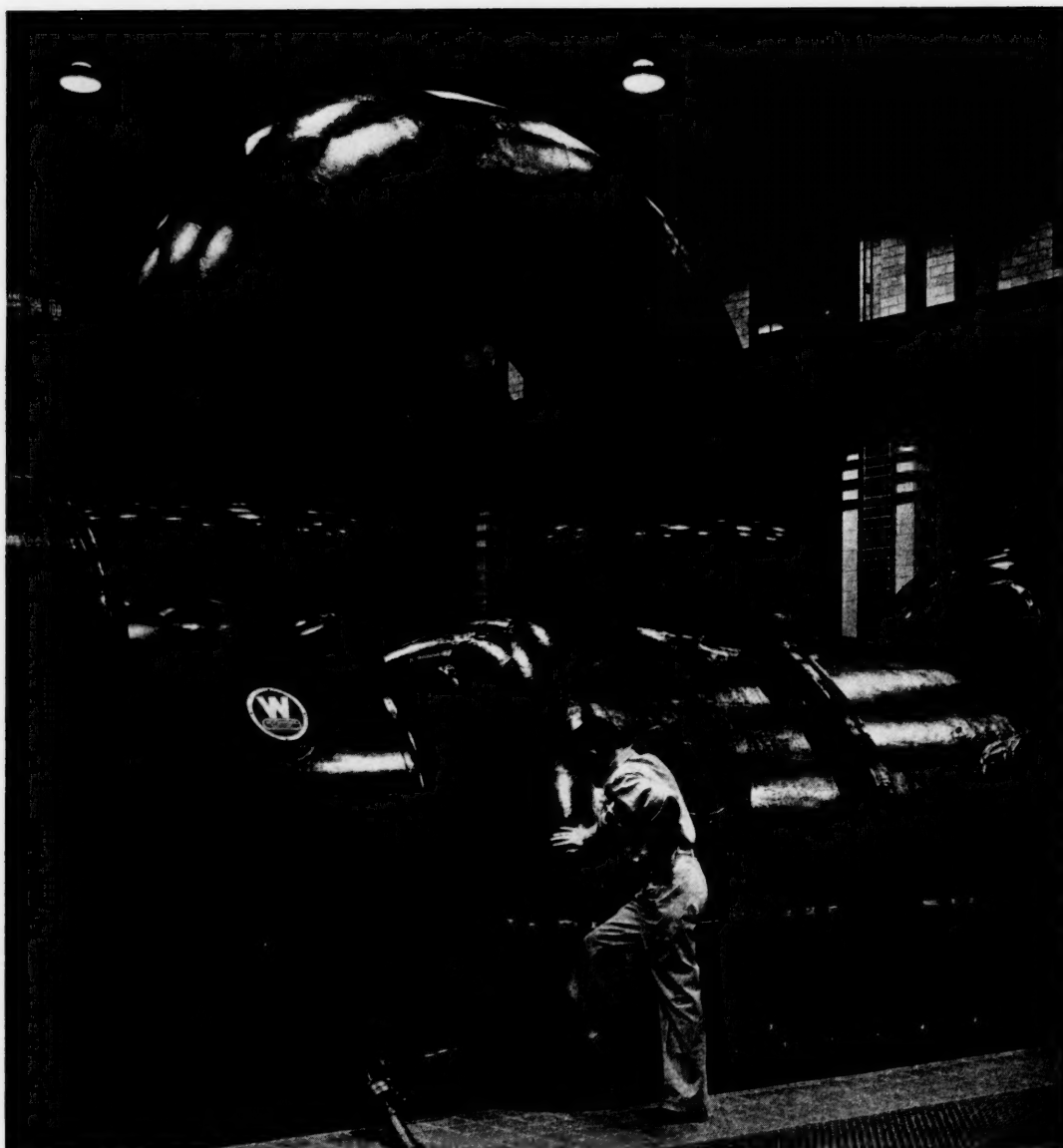
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CALL OUT THE RESERVES!

● The nation's power is measured in many ways—industrial capacity, man power, natural resources and the degree to which these enterprises may "spark" the national progress. These are the arms of peace—and that nation is well armed when its people are strong in these tools of preparedness.

This industry plays a constructive part in every one of these elements. Motive power for industrial production—energizer of man power—efficient utilizer of basic resources, in creating a resultant resource.

The companies in this system have been building in advance for a stronger national arm: 500,000 kilowatts of power capacity was recently added or under construction in this system . . . raising the capacity of the owned electric generating plants of the system to over 2,370,000 kilowatts. This construction means power and work and wages. The development of this capacity has been under way for years. So today, thousands of kilowatts of reserve capacity are on hand . . . ready for orders.



THE COMMONWEALTH & SOUTHERN CORPORATION

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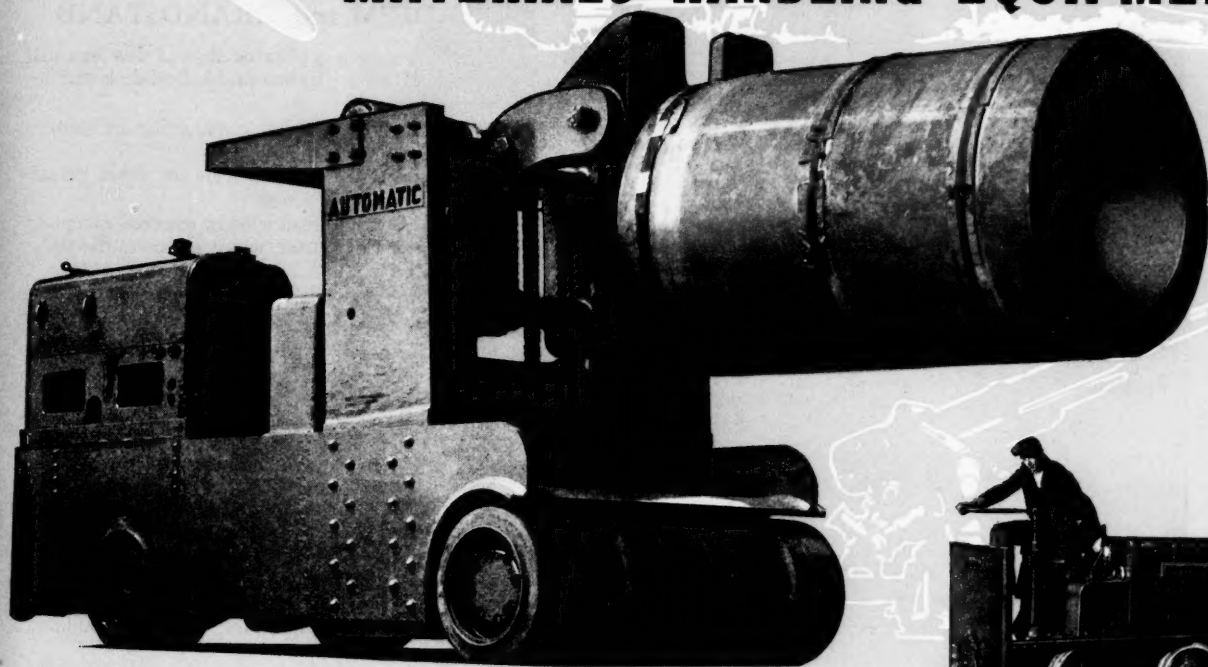
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Prepare for

NATIONAL DEFENSE PRODUCTION WITH ADEQUATE AND EFFICIENT MATERIALS HANDLING EQUIPMENT



TRADE

AUTOMATIC

MARK

Whether you have already been called upon or expect to be asked to play your part in the National Defense Program it's **TIMELY** to check up on your materials handling system and equipment as many others have already done. It is highly important that you make sure you will have *adequate and efficient* equipment to carry thru without any bottlenecks or loss of valuable production time and skilled labor.

To get this quick action on Material Handling Problems get the valuable experienced aid now of the "AUTOMATIC" representative nearest you—let him show you the features of construction that today make "AUTOMATIC" "Electric Propelled" Material Handling Equipment the low-cost way for transporting, handling, stacking, piling, lifting—whether packaged goods, raw material, or bulk—see how "AUTOMATIC" offers you the greatest opportunity for speed, efficiency, and safety—learn why "AUTOMATIC" is today's economical answer to those thousand and one material handling jobs.

If it is necessary to replace your old equipment

or add to your system "AUTOMATIC" has the only complete line of "Electric Propelled" equipment from which to recommend the type and capacity best suited to your needs. Then, too! Each "AUTOMATIC" is designed and perfected for its specific job with the latest engineering production tools to do your job reliably at lowest cost. Whether it's travel—lift or maneuvering you will have the satisfaction of knowing every movement is being performed with precision, efficiency, and utmost speed with safety. You'll know that with "AUTOMATICS" on the job your materials handling will be accomplished expertly and economically as can only be done with "Electric Propelled" equipment.

Some of the heavy duty types of the "AUTOMATIC" line are illustrated here. They represent but a part of the many "AUTOMATICS" now serving American Industry behind the scenes for the National Defense Program.

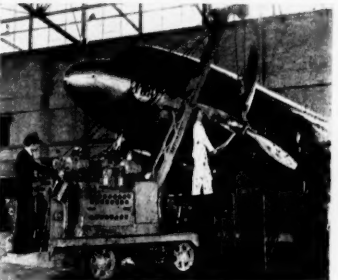
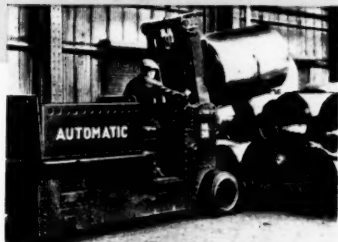
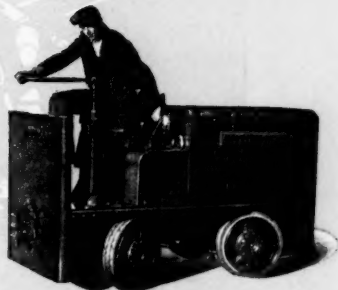
Remember now is the time to make your check-up without obligation, so write, phone or wire for an "AUTOMATIC" representative to discuss your materials handling problems.

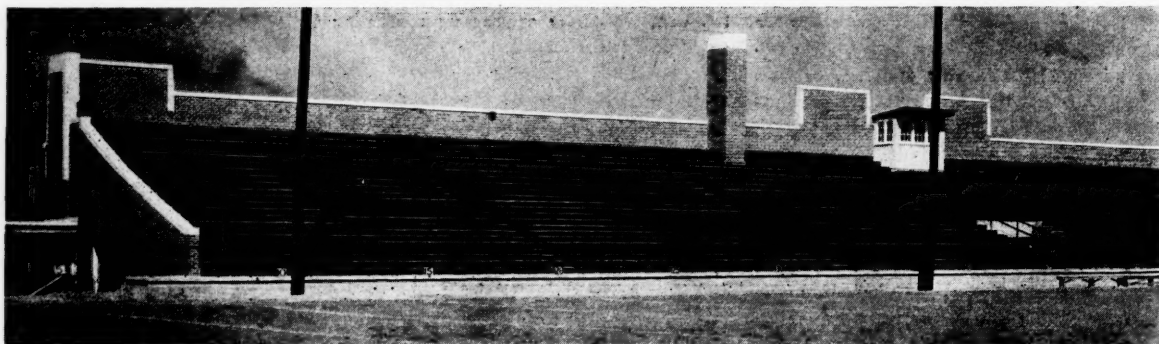
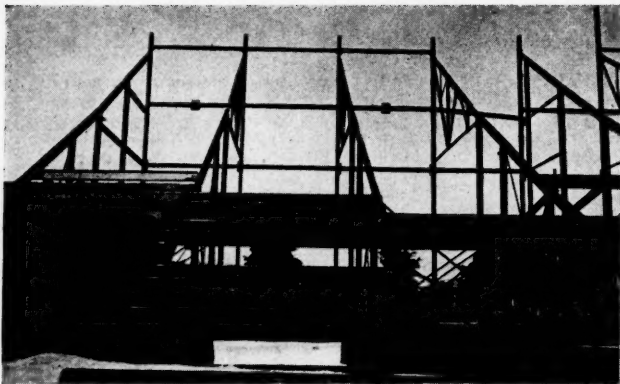
AUTOMATIC TRANSPORTATION CO.

Div. of the Yale & Towne Mfg. Co.

117 W. 87TH STREET

CHICAGO, ILLINOIS





THE HOW ^{AND} WHY OF STEEL-DECK CONSTRUCTION for STADIUM and GRANDSTAND

The accompanying pictures show a few essential features of HOW a Virginia Bridge steel-deck stadium is constructed.

The WHYS for steel-deck construction are many—a few of them are:

1. More economical to build than any other permanent type of construction.
2. Low Upkeep—No maintenance required except an occasional coat of paint, which preserves the structure indefinitely.
3. Thoroughly adaptable to any local requirement as to size and design—also to any ground contour without grading.
4. Easy to extend by adding standard sections at ends, or by double-decking with welded watertight steel plates.
5. Steel-deck plates welded watertight form a perfect roof for room facilities beneath the stadium when desirable to utilize this space for lockers, showers, class rooms, etc.
6. Scientifically plotted and designed by experienced stadium engineers for maximum comfort, convenience and economy.
7. Combines all the inherent qualities of steel that makes it the most dependable and useful building material known to man.
8. Simplicity of fabrication, ease and speed of erection assures quick delivery and completion.

Our engineers are at your service for free consultation of your stadium problem. Designs and estimates furnished without obligation for definite projects.

PICTURES

1. Steel supporting frame and steel-deck plates during erection.
2. Steel seat brackets, with holes provided to attach wood seat boards, welded to finished steel deck.
3. Wood seat boards are bolted to the steel brackets.
4. Bessemer, Ala. High School Stadium complete with brick walls enclosing offices, concession booth, etc. under the steel deck.

Virginia Bridge

VIRGINIA BRIDGE COMPANY

Roanoke

Birmingham

Memphis

Atlanta

New York

Dallas



UNITED STATES STEEL



THINGS TO BE DONE

It has been apparent that whatever the result of the election the billions of dollars to be spent for defense will stimulate business, reduce the number of unemployed and, producing more tax revenue, should go a long way toward a balanced national budget. It depends, of course, on how things are handled. If we spend recklessly, as has been done far beyond government income, the result will be the other way and the country will go deeper into debt. It will be a wise thing to cut out every item not proven absolutely necessary in the enormous bill of costs for what has been set up.

Our prosperity only can be sustained by encouraging confidence on the part of business to venture into fields that promise the creation of new wealth, and to expand to meet the needs of a vast population within our borders.

We must plan for the economy of the future, for the deflation of jobs and income which will follow when peace comes. Unless prepared for the shock, greater difficulties will be presented than those which followed the last war. Then we will have to compete with the cheap labor of Europe, as well as in South America and elsewhere. Nations will vie with us and one another in the effort to rehabilitate themselves.

In our own land houses and equipment of all kinds are still to be supplied for this greatest of all markets within our borders. The construction industry of America, the prosperity of which is so necessary to well rounded progress, has lagged throughout the depression. Restrictive laws that have held back business should be abolished, or so

amended as to make the road for progressive enterprise easier than it has been. We get nowhere by a contrary course. Government spending for jobs is only a stop gap. Permanent employment, permanent prosperity, can only come about by the development of private industry. It always has been so and it is due to the inventiveness, the aggressive spirit of adventure in private enterprise that have made America progress as it has.

One of the growing evils of the times has been the erasure of states' rights. The sharp line that should separate the functions of the states and national government needs to be redrawn.

As we have frequently pointed out, this has not been altogether due to the assumption of power by the Federal government, but local politicians with their hands out for funds have encouraged government spending and lending, government building and government supervision over many activities that had better remain in the hands of states and municipalities. The result is seen in the huge debt burdening the states and cities of the country, while the Federal government has been competing with private enterprise in fields which it has not been in the past accustomed to enter.

The effect undoubtedly is to weaken the independence of the separate states. We cannot proceed along this line indefinitely without upsetting the foundations of the American form of government.

Federal government is paying out \$900,000,000 each month and 13,000,000 individuals are getting checks from these funds. From appropriations made this will increase by January to \$1,200,000,000 each month.

Skilled Labor Shortage

The difficulty of getting skilled labor is likely to increase as the defense program becomes more active. Some students of the situation estimate that there are 650,000 fewer skilled workers available to industry now than there were ten years ago. The shortage, which is being acutely felt by concerns engaged in peace-time pursuits, is being increased to a noticeable degree by those leaving regular employment to seek opportunities elsewhere at supposedly higher wage rates.

While steps have been taken to train WPA workers in skilled trades under government auspices and the demand for vocational schools is increasing in all parts of the country, the situation is giving industrial enterprise considerable trouble. More apprentices are needed in practically every craft.

The American Society of Tool Engineers announces the development of an emergency training program to be national in scope. It is also helping to develop a new four-year high school course as a long-term training program to prevent what is described as "the present national emergency."

The Society estimates that 75 per cent of all high school graduates at present are unemployed—primarily because high school curricula are designed mainly as college preparatory courses rather than being designed to fit graduates to seek employment.

Idle Money

Excess reserves of banks of the Federal Reserve System have risen beyond all known records. In the latest report the total was \$6,940,000,000 of idle money that earns no interest for the banks, and is not being called for by borrowers.

It is well to bear in mind that the figure representing excess reserves is exactly that. Normal reserves, which are necessary under the regulations for banks to carry for the protection of demand deposits, vary from 22¾ per cent in New York and Chicago, to 12 per cent in smaller financial districts. The average normal reserves required of banks in the Southern states is probably around 15 per cent.

In addition to the legal reserves that banks are obliged to set aside against demand deposits, 5 per cent is required on time and saving deposits. This applies to banks everywhere.

Deposits have largely increased as the money the government receives from the sale of bonds is deposited in banks, to be drawn against by the Treasury of the United States. Added to this, there has been a vast accumulation of private and trust funds in banks for which there has been no demand, and it has been found convenient to deposit these excess amounts, which have been beyond the require-

ments of borrowers, with the Federal Reserve Bank of the district.

Recognized as a potential source of credit inflation when normal business demands are heard from, the problem has presented banks with food for thought. It recently has been proposed that Congress fix reserve requirements and remove discretionary power from the Federal Reserve Board to increase them. The suggestion, however, includes permission to reduce reserve requirements if the situation justifies it. The major purpose is said to be to fix legal reserves at a higher point than they ever have been. While this would have the effect of reducing the excess, it is not apparent it would cause any greater demand for money. It is said, however, it would have the effect, if legal reserves are put at a high enough point, of enabling the Federal Reserve System to control further increases by open market operations in the sale or purchase of government securities.

It is not expected that anything will be done immediately, but it will be brought before Congress at its next session. In the meantime, the demand for defense money on the part of industry, which the administration is encouraging, may reduce idle bank funds materially.

Another Frontier

The Longview, Texas, *Journal*, referring to the Southland Paper Mills at Herty, Texas, says that last month this plant—where two years ago there was a cornfield—turned out 120 tons of newsprint "which has been consumed by newspapers ranging from the smaller weeklies to metropolitan dailies."

A recent order from Sears, Roebuck & Company, the Longview paper says, was for 144,000 pounds to be used in printing ten million pages of the Sears' Sale Bulletin.

Thus a great resource of the South is being developed through private industry, to meet a market that will be nation-wide among newspapers and other industrial users.

Dr. Charles H. Herty devoted years of his life to this important new field for Southern pine. With the accomplishment here recorded as an example, it is more than within the bounds of possibility that the United States eventually will be able to supply its own needs in newsprint from this Southern source of raw material, and no longer be under the necessity of importing foreign pulp. The growing of pine by Southern farmers opens up a profitable use for land not always suitable for other crops.

Thus we see another frontier of accomplishment made possible by scientific research. Instead of the future closing in as some have imagined, it will be seen, as capital is freed through increasing confidence, that the adventurous spirit of America in industrial enterprise, which has been atrophied for a time, will spread to a degree that will make pre-

vious periods of prosperity seem small by comparison.

Southern Construction Points The Way

Elsewhere in this issue figures taken from *Construction Daily Bulletin* are printed showing that construction in the Southern states for the ten months ending October 31 has surpassed all previous records. The total is \$1,061,672,000. While a large part of the increase is due to defense activities, there are notable additions to private plants in many states of the South, which indicate recognition in a practical way of what is required to meet the demands of an expanding market.

The MANUFACTURERS RECORD also has the privilege of presenting in this number the views of the leaders of nationally known companies as to what the South holds for their business because of the unique advantages of this section, and the fact now being generally appreciated throughout the country that the Southern states are rapidly developing a great consuming market. The faith of these great enterprises is shown by their works in the added facilities of new plants and expanding plants which they have located in the South. More examples of acceptance of the opportunities in the South, on the part of great enterprises, will appear in later issues.

It is beyond question that the South today is more alive to its opportunity for industrial upbuilding than ever in the past. It has been the privilege of this publication for nearly sixty years to proclaim to all and sundry the remarkable advantages the South possesses for industrial development that are matched by no other section. "The South's Resources" which we recently printed gave such factual information about where these resources are located, and what can be done with them in the building of a great industrial empire, that it was most generously received throughout the country as a much needed work. On the other hand, of the hundreds of letters that have come from all sections, one of the most gratifying features of the undertaking which required months of effort to produce, is that a large proportion of these communications came from Northern concerns pointing out the attention these firms already had given to the enlargement of their business in a field where opportunity is to be found.

The South is at the threshold of great undertakings. It must fill a large part in the nation's plan for defense, although it has not so far seemed to have gotten a proportionate recognition by the Federal government of the advantages it has in protected locations and raw materials for the building of what is needed. Doubtless that will come as

it should, but in the meantime it is well to point out that private enterprise in the creation of new wealth is utilizing southern money and northern money to locate in a section where opportunity waits.

The South and National Defense

The Beaumont *Enterprise*, quoting a statement from the MANUFACTURERS RECORD that "the South has nearly 20 per cent of the country's manufacturing plant capacity, but has received far less than 20 per cent of the armament orders," refers also to the decision reached by the Southern Governors' Conference at Mobile a few weeks ago, which went on record to the effect that "based on a careful and reasonable study of the operation of the national defense program up to date * * * the long range benefits to the whole nation for both present and post-emergency spending are being pushed into the background * * * the Conference deplores this trend in the expansion of war industries particularly as it applies to new plants and new developments, and the apparent lack of a proper appreciation of the advisability of decentralization."

The *Enterprise* calls attention to the fact that "although the South has ample plant facilities and natural resources to play an important part in the national defense program, the familiar spectacle is now witnessed of a Democratic administration depending as usual on Southern loyalty, and distributing national defense contracts elsewhere. * * * The immediate fact is that the South is not being allowed to do all that it could, and should, do to advance the national defense program."

The *News and Courier*, Charleston, S. C., also referring to the fact that the South's facilities for national defense are not being taken into full account says:

"Indeed, the South is ready, willing and able to take a most active part in the preparedness program. It is for government to give the South a full opportunity to make adequate contribution. From another angle, it is fair and just that the South should be given its full share of the funds to be spent by government in this program. The South is taxed at the same rate as other sections are taxed.

"Both the North and the South would suffer if politics were allowed to influence the placing of contracts. There should be no color of politics in making the American people ready for any emergency. There should be no suspicion that the South has been shared short because it is not politically doubtful. Given a fair chance, the South will deliver what the nation needs."

South's Advantages

Recognized—



by

PHILIP D. WAGONER, *President*
Underwood Elliott Fisher Company

The Underwood Elliott Fisher Company was organized to provide essential business machines, supplies and service facilities for use by American business and industry. Since we are in such close contact with all branches of business and industry, we naturally have our fingers on the pulse of progress in this great country of ours.

I have every confidence in the future of America, and firmly believe that we shall continue to grow and advance under the principles of a free people. Enterprise and initiative thrive, as is evidenced by the fact that each working day finds hundreds of new business ventures launched in the United States.

This has been particularly true of our South during the past ten years. New industries have come into being and established industries have relocated or expanded in the southern states to give a greater distribution of products and increased jobs. This progress that we have observed has been of the slow and steady variety which gives an atmosphere of permanency, and not the swift boom which mushrooms to greatness and eventually collapses of its own magnitude.

It follows that an increase in manufacturing creates

a supplementary market for products such as ours in the office equipment industry. First, the increase is noted by the machines which were, and continually are required in this section by the producers themselves. The greater the manufacturing production the more typewriters, adding and accounting machines are required to accommodate the essential record keeping.

Then, as more people are employed, suppliers of the essentials and luxuries of life must be established or expanded to serve these people and their families. More machines are required to accommodate these usually small, but highly important businesses.

Even in the homes we are able to note the improvement of general conditions in the South. Portable typewriters for correspondence, school work and business are demanded in increasing numbers.

The South has always been an important market for products such as ours which are indispensable in every phase of business and professional life. Now, as the South increases its manufacturing potential, this expansion is felt in every section of the country. Larger manufacturing plants require additional outlets for product distribution in an ever widening circle. As the outlets increase in size and number, this is reflected to us by the greater requirements of machines in the manufacturing headquarters.

How does the South rate? From our viewpoint, its importance has been increasing annually for a long time. We cannot predict the future beyond the normal expectation that well established progress such as this will continue to grow so long as standards of products are maintained at high quality and the industries continue to be established on sound financial bases.

It can continue to improve the Southern market so long as more and better jobs continue to maintain purchasing power in keeping with the American standard of living.

I cannot help but feel that now is only the beginning. During the past few years we have seen a definite upward trend in our sales charts in the South. I cannot comment for the entire office equipment industry, but our own efforts there have been well justified. Since the market for our products continues to improve each year in the South, it must mean that other manufacturers, whose progress we reflect, have an excellent market in the South.

I do not feel that the commercial future of this country lies only in the South, but I do feel that it will be benefited to a substantial extent by the South as a manufacturing region, as a producer of raw materials and as an important market for products of universal

(Continued on page 64)

—by leading industrialists

The rapid growth of the South in recent years as a source of raw materials, as a manufacturing region and as an important market has attracted nationwide attention. More than once this development has been described as phenomenal by competent observers of our national economy.

Many figures available from unbiased sources such as the U. S. Department of Commerce, The Brookmire Corporation and others, validate the statement that business levels are extremely high in the South.

A few significant indices reveal that department store sales in the South during 1939 were greater than in 1928, while for the entire country sales during 1939 were 16.7% under the 1928 level; that the increase in electric refrigeration sales, 1939 over 1931, for the South is 172% while for the rest of the United States the increase was only approximately half as great. More important from our standpoint, as a manufacturer of building materials, is the fact that more homes proportionately are now being built in the South. In 1939 one-and-two-family houses built per 100,000 families were at the rate of 2121 for the South—and 1025 for the rest of the United States.

It is for these and other reasons that The Flintkote Company is now completing the construction of a modern factory costing approximately \$3,000,000 at Meridian, Miss., for the manufacture of a complete line of wood fibre decorative and structural insulation and wall board products.

This new plant, to be completed by January 1, 1941, will employ about 475 workers, exclusive of timber cutting crews and foresters, under normal operating conditions. In excess of 100 carloads of highly specialized felting and processing machinery will be required to put the plant in operation. The new plant will have a production capacity of 100,000,000 feet of insulation board products annually and is located in the heart of 1,000,000 acres of southern pine, thereby insuring a constant economical supply of the raw materials for this new line of Flintkote products.

The increasing trend toward "dry construction" which has gained so much momentum throughout the building industry in recent years is responsible for our decision to enter this expanding market more aggressively. By manufacturing a complete line of insulation and wall board products in the United States we can make the best use of our sales and research facilities in the development of constantly improved materials. Our new factory will be the most modern and up-to-date plant in the industry, with four to five acres of productive and warehouse space under roof. Our new line of



Blank & Stoller Photo

by

I. J. HARVEY, JR., *President,*
The Flintkote Company, New York

decorative board products will be attractively colored in tune with the modern trend in dry, easily applied interior decorative materials. The structural materials—insulating sheathing, insulating lath and roof insulation, to mention the more important groups—will be scientifically designed to provide maximum insulation and structural strength.

This new plant at Meridian, in addition to our existing major plants at Rutherford, N. J., Chicago Heights, Ill., New Orleans, La., Lockport, N. Y., and Los Angeles, Calif., now manufacturing a varied line of building materials, specialized industrial products and paper board products will further round out the services offered to the construction and industrial markets and represents another step in our diversification program.

Flintkote is indeed happy to be able to thus contribute to the further industrial expansion of the southern states. It's my belief that this area is rapidly taking its rightful place in the national picture and is destined for even greater growth in the next one or two decades than most of us now realize.



CHAMPION PAPER EXPANSION IN TEXAS

WHEN on June 19, 1940, The Champion Paper and Fibre Company put into operation at Pasadena, near Houston, Texas, one of the newest and most advanced paper machines of its kind, they added another big unit to their operations conducted in the South for the last thirty-two years. Champion already had a pulp mill on this site, put into production in 1937, at a cost of approximately \$3,000,000.

It is worthy to note that Champion long ago recognized the importance of the South as a source of supplies for their tremendous plants. Only fourteen years after its organization, in Hamilton, Ohio, in 1894, this Company went into the South to erect its first pulp mill, at Canton, N. C., in 1908. To this Champion operation was added paper machines in 1920, in 1924, and still another, the largest of its kind in the world, in 1932.

So Champion was far ahead of the industrial thinking which came about as a result of the first World War, when it became evident that America should make itself more independent of foreign raw materials. After that war, Champion continued its Southern development, by the addition of paper mills at Canton, and in erecting a pulp mill in Houston in 1937. The wisdom of producing domestic pulp was demonstrated further last year, when Mars again ran amuck over Europe and seriously curtailed all sorts of supplies from that part of the world. With pulp and paper mills in Canton, N. C., and Houston, Texas, a lime plant in Knoxville, Tenn., and clay mine and refining plant in Sandersville, Ga., Champion is almost entirely free of the necessity of buying materials outside the United States.

Following their entry into the South, Champion devised and perfected the method of making fine white paper from Southern pine, on a commercial scale. Consistently Champion has been a leader in such production in the South, and the extension of its paper making operations into Texas still further increased Champion's leadership in the industry.

Houston was chosen as the site for the new pulp mill in 1937, because of the closeness of large stands of pine timber, and supplies of sulphur, lime, salt and natural gas. Other advantages include extensive railroad facilities, and the Houston ship channel, providing shipping outlets to points in the United States, South America and Cuba.

Timber cutting rights of Champion now cover more than 2,000,000 acres. This company exercises careful supervision over cutting, for when timber is taken out scientifically, forests are able to renew themselves without replanting and without

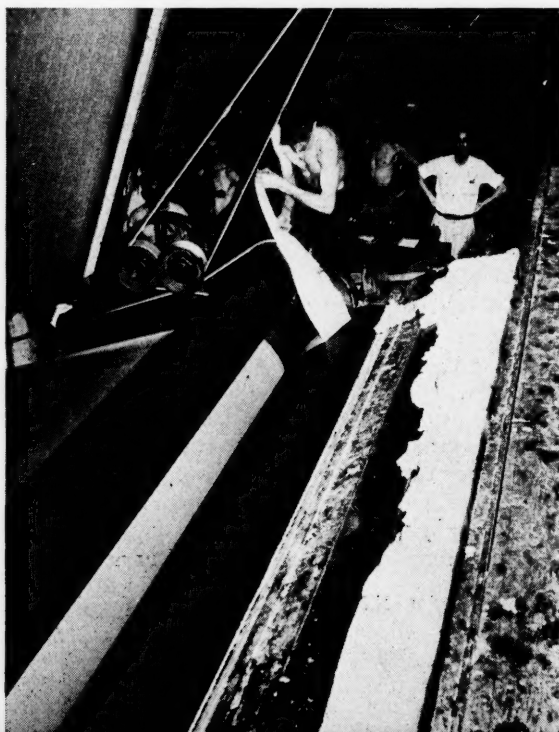
the possibility of exhaustion. Danger of forest fires also is lessened.

The factor immediately responsible for the new paper mill in Houston was the closing of a contract between Champion and Time, Inc. After making cover stock for Life Magazine for some time, Champion contracted to supply body stock, in such quantities that facilities then available could not produce this additional tonnage.

So it was that the new \$3,500,000 mill began operations in Houston. This mill is designed to produce, in addition to machine coated paper, bond papers, envelope paper, white tablet paper and wrapping paper for the southwestern markets. The new mill is so laid out that it operates on straight-line production . . . pulpwood goes into the mill, and within twenty-four hours comes out as finished paper.

The additional operation at Houston increases Champion's annual payroll by about \$400,000, doubles the floor space occupied, and gives an additional capacity of 120 tons per day. The total employee list is approximately 575.

The paper mill at Houston is the newest and most advanced of its kind, and was built by Merritt-Chapman & Scott Corporation, New York. Six Dilts beaters, with 2,500-pound capacities each, make up the principal portion of the beater room equipment. These beaters have Westinghouse motor-



Above—The Champion Paper and Fibre Company plant near Houston, Texas. Right—Stripping the tail off the dual press.

drives, and are tile-lined. Each has its own slush tank into which pulp flows directly from the pulp mill. This pulp is diluted in the beater chest to an exact consistency for the paper machine, and then is pumped into a larger storage compartment until needed.

Five Jones Majestic Jordans, Westinghouse motor-driven, are also in the beater room, and piping is so arranged as to permit use in tandem or in smaller groups when necessary. The wet end control station is located in the beater room, so that control men have quick access to stock which is to be treated.

The Headbox, weighing 105,000 pounds, is the deepest one ever built and, together with the slice, was made by the Valley Iron Works.

The Fourdrinier is built entirely of stainless steel, has a wire 214 inches in width and 115 feet long, and is carried by thirty-two table rolls and the suction couch roll, and passes over eight suction boxes. The Beloit horizontal dual press, with which this machine is equipped, is found to produce a smoother, more even sheet, and does it in less space than required by the usual press section.

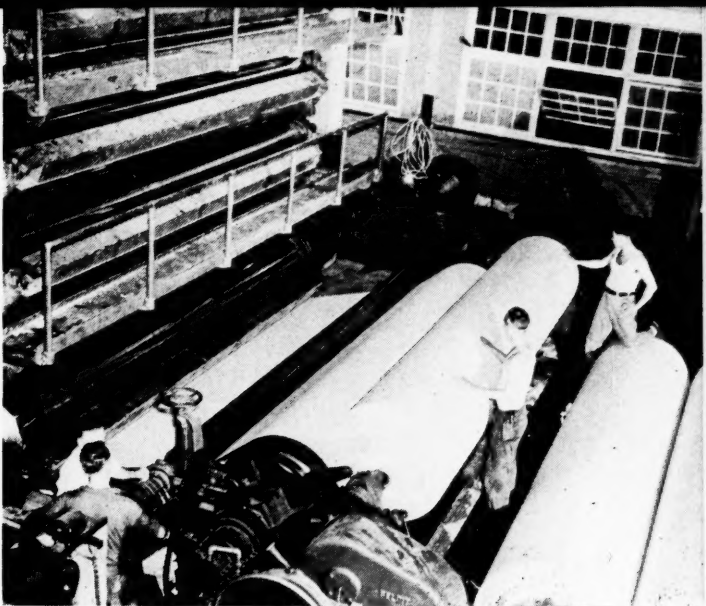
Of the seventy dryers which operate in this mill, two are eight-feet in diameter and the rest are five-feet. Of the five-foot dryers, eighteen are Feeney Felt, and each has its individual motor drive.

Coating equipment consists of four coating stations, two each for the wire and felt sides; and in connection with the system is a complete color room where the coating is produced.

Two nine-roll stacks of calenders, of the open end type, are at the dry end of the machine, and these are all completely roller bearing equipped. Beloit chain drives equip the paper machine, and are hooked up with the General Electric sectional drive—the largest driving unit ever put on a paper machine. The total load at the Houston plant is approximately 10,000 horsepower.

Two 71-inch cutters, one with an overlapping layboy, are part of the finishing room equipment; as also are two trimmers, 64 and 84 inches wide. Other production items performed here are sorting and packing, fanning, counting, and storage.

The supercalender, with a height of 28 feet, is the largest in the United States. It consists of two calendering units built back to back, each being made up of ten rolls, five of which are steel and five are paper. The bottom roll, made of steel, is forty inches in diameter, and weighs thirty-five tons, while the top roll, also steel, is thirty-six inches in diameter and weighs thirty-two tons. The three intermediate steel rolls are fourteen inches in diameter and weigh four tons. The five paper rolls are twenty-two inches in diameter and weigh six



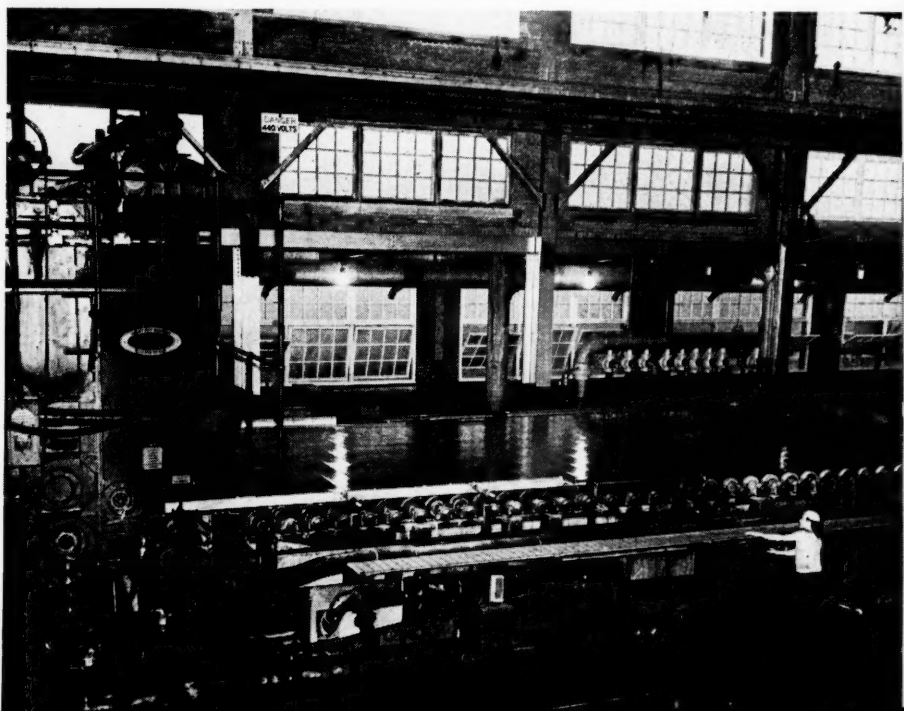
tons each, a total weight for the rolls of 169 tons. The weight of both calenders and drives is 900,000 pounds. The maximum pressure exerted on the bottom nip of the supercalender is 300 pounds per lineal inch.

The supercalender attains a speed of 2,000 feet per minute, and is driven by a 500 H. P. motor. It is so high that each stock has two elevators for the use of operator and helpers in threading paper and in filing rolls. All controls are air or hydraulic operated, and in case of emergency, the supercalender can be stopped from full speed operation in three seconds. Each unit has a panel with 28 manual controls for the operator, and thirteen visual dials indicate that number of operating conditions on the stack at the same time. A system of motor driven gear units raises and separates the calender rolls when not in use. The fibre rolls are cooled by cold water circulated from a ten-ton ice machine.

The paper machine in Houston now has been in operation long enough for its owners to know that it is the finest of its kind. They know, also, that the South and its resources have had much to do in enabling Champion to attain its present position in the industry. Today this Company has over 2,700 employees in the South, as well as three of its four plants. Of its daily average freight movement, 104 cars are in and out of southern plants. With the abundant raw materials found in the South, it is small wonder that more and more mills are following the example of Champion, and counting upon the South for a large share of their production.

Top right—The calendar stock and reel end of the paper machine.

Bottom right—The Fourdrinier section of the new paper machine built entirely of stainless steel has a wire width of 214 inches and is 115 feet long.



DEFENSE NEWS FROM WASHINGTON



Washington, D.C. October 31 — Although the Selective Service Draft Program overshadowed most defense news from Washington during this past month, many other occurrences of interest took place. During the first week of the month the Army completed placement of orders for all the 18,641 planes voted by Congress this year. Concurrently, Congress passed an "excess profits tax-plan amortization bill" containing these features: (1) an excess profits tax schedule, ranging from 25% on the first \$20,000 of excess profits to 50% on all above \$500,000; (2) an amortization provision, permitting firms to deduct from taxable income, over a five-year period, the cost of new plant facilities, constructed since June 10, to meet defense needs; (3) a provision suspending the Vinson-Trammell profit limitations on ship and airplane contracts for the duration of the tax; (4) a clause adding 3.1% to the normal corporate tax rates for corporation with net income over \$25,000 during the taxable year, thus bringing the normal tax rate to 24%.

Altogether, between June 13 and October 1 Army defense orders aggregated \$2,361,000,000 while those for the Navy totaled \$4,518,000,000. Total treasury payments of national defense bills during September was \$219,230,000.

As of September 27, it was determined that the Navy had 1,812 planes on hand and 3,001 on order. Contracts for 4,000 additional planes were expected to be signed shortly. With completion of the last orders for the 18,641 planes voted by Congress this session for the Army, the War Department will make no further releases concerning the number of planes on hand and available for service in order not to give potential enemies a time table of American air defense.

During the second week of the month the Navy authorized nineteen concerns to construct additional ordnance and shipbuilding facilities, costing \$96,146,000. At the same time the War Department instructed seventeen airplane factories to place production on a three-shift basis, and also arranged for a shell forging and machining plant to be built at Gadsden, Alabama, while a shell loading plant was authorized for construction at Burlington, Iowa, at a cost of \$100,000,000.

Adequate Supplies of Materials Reported

Stock piles continued to grow so that NDAC Commissioner Stefanius was able to report there are adequate supplies of steel and scrap iron, a two-year supply of manganese and a one-year supply of tin, all indispensable to the manufacture of munitions. In addition the Commissioner announced aluminum industry plans to expand to produce an additional 150,000,

000 pounds a year and the Commission arranged for an emergency reserve supply of 250,000,000 grease-pounds of British-owned Australian wool.

Defense Housing Program

C. F. Palmer, NDAC Defense Housing Coordinator announced that to attack a reported need of 128,791 housing units in 216 cities of 39 states and 8 possessions—which may increase to 200,000 units—the Federal Government now has \$290,000,000 which will be used for a housing program having five general categories: (1) private housing; (2) an RFC equity purchase plan; (3) a Federal Works Agency program; (4) a USHA program; (5) programs of the Army and Navy.

"If the average unit costs \$3,500, the total cost will be \$700,000,000, of which the Government has only \$290,000,000," Mr. Palmer stated. "Consequently, it is self-evident how heavily the Government must lean on private industries."

The Federal Works Agency is in charge of meeting temporary needs which require direct construction by some agency other than the Army or Navy. The Lanham Housing bill, appropriating \$150,000,000, was sponsored for this purpose and places responsibility on the Administrator of FWA, although the Farm Security Administration and the WPA facilities may also be utilized.

Mr. Palmer emphasized that "every step in the program is designed to forestall any definite influence which would prevent private industry from fulfilling its obligations and making the most of its opportunity."

Developments were made during the third week of the month to speed airplane production by subordinating motorcar model changes to the needs of national defense. Tooling will be directed to a production of fighter planes and a mass production of aircraft while the resources of manufacturers will be pooled for the production of tools, dies, jigs and other machinery needed in the manufacture of aircraft parts.

New Aircraft Plants Financed

The War Department signed contracts to finance two additional plants to expand aircraft production facilities. These contracts are part of a plan to increase floor space in the nation's plane factories from 10,000,000 to 25,000,000 square feet. Continuing the policy whereby the Army and Navy will share delivered motors, the War Department contracted with the Wright Aeronautical Company for \$81,569,000 of airplane engines.

Employment in the aviation industry has increased approximately 400 percent in two years, according to a report sent to the President by Secretary Morgenthau. The report shows total aviation employment in September this year as 118,800 compared with 50,600 in September 1939 and 28,700 in September 1938.

The President signed a bill permitting Government acquisition of military equipment, munitions and supplies and ma-

chine tools for which export licenses have been refused. The most important effect of the legislation will be diversion to United States' factories of \$45,000,000 worth of tools, now on American docks. President Roosevelt announced that U. S. S. R., as a "friendly Power," will receive desired machine tools and machinery, except for those items which Army and Navy experts decide are vitally needed by this country's defense industries.

The highlight of the fourth week of October was the delivery of the first of eighty new 22-ton flying fortresses, swifter and more high-powered than their predecessors, and the Stinson O-49, an approved two-place unarmed observation plane. These are now being put through their paces by the air corps at the Wright Field Experimental Station at Dayton, Ohio. Shortly after these deliveries were made, Secretary Morgenthau announced, that the crack Curtiss P-40 pursuit planes, being made for the United States and Great Britain, are "a number of days" ahead of schedule.

During the month ended October 25 the Navy disclosed having purchased 35 merchant ships at a cost of more than \$15,000,000. These ranged in size from 7,000-ton ships to small yachts and tugs.

In the line of plant expansion, the government will underwrite \$10,700,000 of plant expansion by Boeing Aircraft Company at Seattle, Washington, and Wichita, Kansas.

Other Plant Expansion

Other import construction work announced included additional T. N. T. production facilities at the Kankakee Ordnance Works, Wilmington, Ill., where construction will cost \$30,000,000 to take care of contracts totaling \$85,700,000 for artillery ammunition components. To further speed its program in establishing a vast munitions industry the War Department allocated \$550,000,000 of the \$774,000,000 set aside for this purpose. Under this program, the \$25,000,000 smokeless powder plant at Charlestown, Ind., was given an additional \$26,000,000 to permit doubling the 200,000 pounds daily output originally scheduled. In addition, another plant was ordered at Radford, Virginia, and arrangements for two more also are being made. Another extremely important development was the agreement with the Bolivian government to supply this country with sufficient ore equivalent to 18,000 tons of refined tin per year. The ore will be purchased at a price averaging about 43c per pound by the Metals Reserve Company, an RFC subsidiary, and smelted in plants yet to be constructed in the United States.

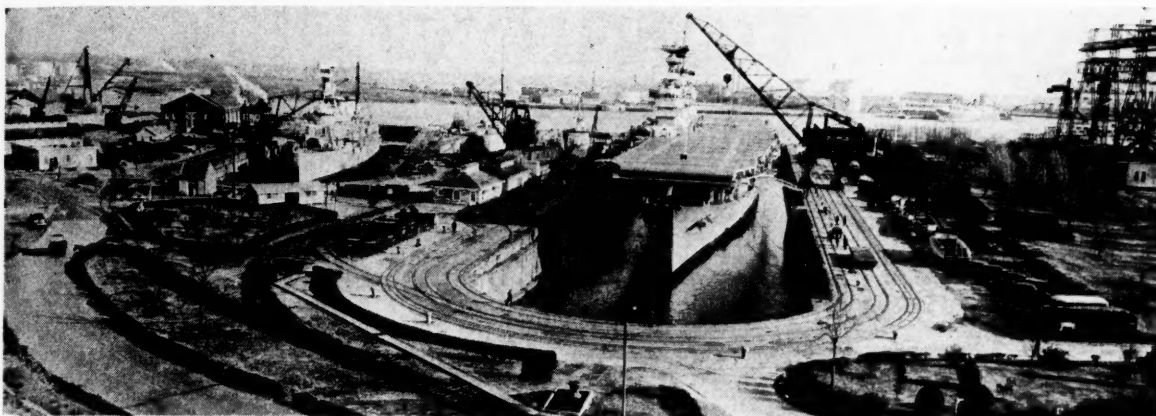
During the last five days of the month a \$28,679,000 contract for airplanes was awarded by the Navy to the United Aircraft Corporation.

Accessory Contracts Awarded

Together, the air and signal corps awarded contracts to various firms totaling \$26,388,000. These included an order to RCA Manufacturing Company for \$2,388,354 worth of radio receivers while the Bendix Radio Corporation of Baltimore received two orders—one of \$1,844,000 for radio compasses and another of \$374,000 for frequency meter sets.

The Atlas Powder Company of Wilmington, Delaware, was awarded a \$6,390,000 contract for operation of a T. N. T. plant at Weldon Springs, Missouri. The largest aircraft contract was \$12,671,000 for aircraft armament awarded to the Bendix Aviation Corporation of South Bend, Ind.

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THE NORFOLK AREA AND NATIONAL DEFENSE

BY
F. E. Turin

WITH the threat of World War No. 2 involving the United States, Hampton Roads is again becoming a greater focal point in the preparedness program. Things are moving so swiftly in the interest of national safety that it is difficult to keep the records up to date; of the sixteen billion dollars set up by the government for national defense measures, up to September 26, 1940, more than one billion dollars has been earmarked for improvements, warship building, new docks, etc., in the Norfolk-Portsmouth-Newport News area.

The battleship Alabama, a seventy million dollar job, is now under construction at the Norfolk Navy Yard at Portsmouth and two of the new super-battleships planned will also be built at the Yard. Millions of dollars are being spent there to enlarge the ways and another pier is under construction. The Kearsarge, one of the new giant airplane carriers, may also be constructed at the Yard.

The employment force at the Norfolk Navy Yard jumped from 6,515 in 1939 to 10,652 (July 1, 1940). The jump in dollars, from an annual payroll standpoint, was from \$11,795,645 to \$18,819,927. In addition to the regular employment lists, WPA had nearly 900 men at work with yearly rolls calling for about \$500,000.

In order to assist in housing the workers at the Yard, Rear Admiral Manley H. Simons, Commandant of the naval facility, recommended that the government

develop a housing plan with the necessary financial support. This has resulted in the Navy Department contracting for 2,123 units in eight projects running from \$2,000 to \$6,000 each, thus contributing millions of dollars within the next few months for increased building activities in the area. Add to this further housing projects, also in the millions, arranged by Rear Admiral Joseph K. Taussig, Commandant of the Naval District and Base, for the enlisted men at the Base, and one has a fair picture of how active it is in the building field.

Part of the one billion dollars for the Norfolk-Portsmouth-Newport News area goes for a million dollar central power plant for the Navy Yard. The Naval Hospital at Portsmouth also has been marked for additions and improvements at a cost of \$621,000.

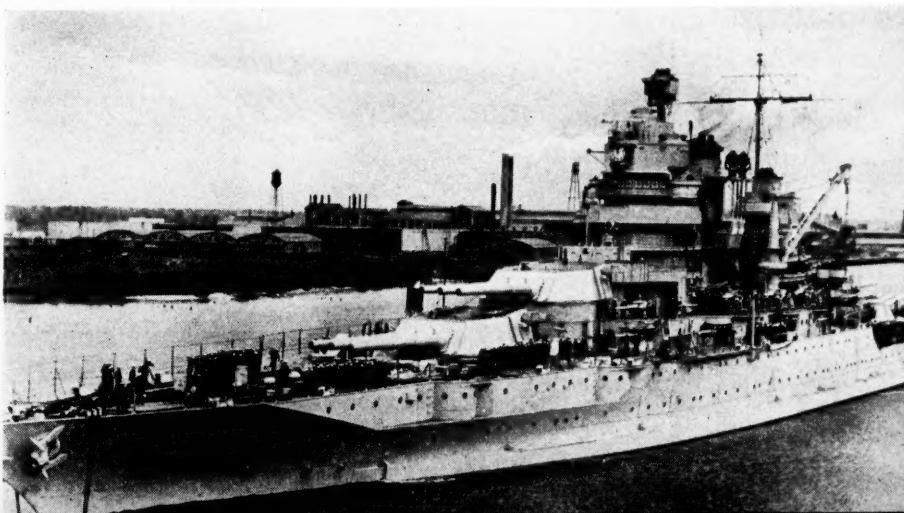
The additional air station facilities for the Norfolk Naval Base are set up at present at more than \$13,000,000. Work is already under way. Also, a new merchandise pier and other facilities for the base have been authorized at a cost of \$3,200,000.

Hammers are ringing, too, at Newport News, where the Newport News Shipbuilding and Drydock Company is working night and day on a gigantic shipbuilding program for the Navy, including three aircraft carriers at \$130,986,000 and two latest type cruisers calling for an expenditure of \$38,000,000 for each, with more to come. The Kearsarge, now authorized for the Norfolk Navy Yard may be switched to Newport News if the order for an additional battleship is placed for Norfolk.

Staggering sums running into the millions have also been appropriated for Langley Field, the Army's big air base in the Hampton Roads area. Fort Story, at Cape Henry has been changed from the

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Above—A scene in the Norfolk Navy Yard showing an aircraft carrier entering drydock with a smaller naval vessel in the adjoining drydock. Right—One of the United States' battleships at anchor near Norfolk



OBSERVATIONS ON UNEMPLOYMENT

WITHIN the writer's recollection beginning some sixty-five years ago, it was noticeable that the skilled employees in the iron and steel industry mostly came from England and Wales. In the glass industry they came principally from Belgium and France. Our early railroads were constructed mostly by Irish labor. In the early eighties the coal mining companies began to import Hungarians and Slavonians. Later the pipe lines imported thousands of Italians, and later still other industries brought in Negroes from the South, and Mexicans. In an industrial, expanding country, all these thousands of immigrants were apparently needed. At the time mentioned, the population was approximately half what it is today. At that time, it seemed we could not bring in labor enough to keep pace with the growing demand.

The condition of unemployment today very naturally raises the question, what is wrong with industry, why such an army of unemployed? The answer to such an involved question is not easy. A remedy that would work in one section might not work in another. Politicians are past masters in perpetuating themselves in office, and little else. We can easily agree that the laborer is worthy of his hire, and at a price mutually agreed upon. We can further agree on the matter of collective bargaining since every time a man is employed, there is at least a degree of collective bargaining. An employee is not forced to work at a wage below what he considers fair. An employer is not forced to hire a man at a wage above what he can afford to pay,—except in the past two years. As to the relationship between employer and employee, or if you wish, between capital and labor, I would say that on the whole, relations are friendly, except where politicians, and ambitious labor leaders, have muddled the water.

Any decent, thoughtful employer would rather have one man on one job for ten years, than to have ten different men on the same job every year. The right sort of an employee prefers to work where he has assurance of a steady job, hence it behooves both sides to cultivate friendly relations. It is true there have been exceptions to this rule, but none that could not have been better adjusted by the States, than by the Federal government.

Seven years or more ago, the present administration promised a "New Deal," (whatever that may mean by implication), "a more abundant life," etc., and

The following article was written and submitted to the MANUFACTURERS RECORD without our solicitation. The author, who is over 70 years of age, is the operator of a lumber mill and was prompted to write this paper after reading the MANUFACTURERS RECORD editorials of the past two months. He has been a subscriber of the RECORD for over 20 years. The article is published without signature in deference to the request of the author who says "I realize that an unsigned article is weakened, but this present administration can and does exercise a power that can put any of us out of business if they choose to do so. Of course we have a constitutional guarantee of 'Free speech and free press, etc.', but unfortunately we have no like guarantee against the political consequences, when we are untactful enough to utter a few unpleasant truths."—Editor.

then began restricting production. Not satisfied with that, they began to be-devil and damn every employer of labor, and to pretend that every working man was a saint, and that every employer was a sinner,—or worse. This had the effect of seriously disturbing peaceful relations between employer and employee, and at this writing there is but little evidence of improvement. The "Labor Relations Act" should have been labeled "The Labor Devastation Act." To make matters still worse, along came the "Wage and Hour Act," fixing a minimum wage and a weekly maximum of hours. The act, like many more New Deal laws, was hastily and thoughtlessly drawn, imposing great hardships on many classes of labor, and the interpretation left to the administrator, instead of the courts. If an employer writes the administrator for advice, he is referred to "Interpretive Bulletin No. 41144," or some other number, which may or may not be relevant. If you ask a field agent of the Wage and Hour division, you will quickly learn that an employer has no rights whatever anyhow and to make your own interpretation. If you guess wrongly, all it amounts to is: "It is just too bad."

The writer has on a number of occasions, loaned trusted employees the full purchase price of homes acquired, extended the employee conditions of repayment within his ability to pay, carried them over periods of unemployment, etc., but under this act, we are not safe in making any book charges against the employee. Such incidents may appear irrelevant, but only illustrate a few of the

handicaps under which an employer must now operate.

Our mill is a comparatively small unit. We employ about thirty men cutting, logging, trucking and manufacturing lumber. We comply with the wage and hour act, scrupulously, although in principle, have never approved of it, on the grounds that the matter of wages and hours should be a matter of private contract between employer and employee entirely. No two employees can or will deliver exactly the same units of labor in a given time. No two employees are identical in the attributes of loyalty, strength or ability to perform, or intelligence to achieve. Yet under this act we are forced to pay a minimum wage, which is really higher than we can afford to pay, in our line.

Thus the wage becomes a uniform wage, which in turn means that we are paying the inefficient more than he is worth, and the really efficient less than he is worth. We are limited to forty-two hours weekly, any over-time in that week we are penalized, 50%, yet the employee does not deliver any more units of labor during that over-time period than during the legalized forty-two hour period. During the extremely cold weather last January, our men only got in two days work during that month, just some emergency construction. When these same men returned February 10th, when the weather permitted, they could not make up such lost time by working longer hours during any one week. Many of these men had been with us for years, it would have been unconscionable to refuse to extend necessary credit to tide them over the emergency, yet it would be a technical violation to charge it; a case where you are damned if you do, and doubly damned in your own conscience if you don't. There is nothing uniform about a uniform wage, unless costs of living can be made uniform all over the United States; or, unless a minimum selling price be established for every item manufactured or produced under the wage and hour act. Both are impossible propositions.

Organized labor seems to be capable enough to exact the limit from employers, and in most cases to demand more than conditions warrant. Consequently, since being in a position to enforce its reasonable or unreasonable demands, it does not require any protection from the Federal government. In nearly all cases it is and

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NASHVILLE'S AIRPLANE PLANT UNDERGOES LARGE EXPANSION

BY

Frank W. Ziegler
Chamber of Commerce,
Nashville, Tenn.

JUST a year ago construction was in full swing on Tennessee's first major aircraft manufacturing plant at Nashville, where the Stinson Division of the Aviation Manufacturing Corporation was erecting a new plant for quantity production of commercial planes and a new military liaison observation ship.

Today a similar scene of intense construction activity is being reinacted around this same plant as its floor space is being increased four-fold to provide facilities for the production of fighting planes by Vultee Aircraft, Inc.

In the early part of August, when Stinson had finally gotten its production schedule thoroughly underway and its trim passenger ships were coming off the line with clocklike regularity, announcement was made that Stinson had been purchased by Vultee Aircraft, Inc., and that the Nashville plant would be enlarged and used exclusively for the manufacture of military planes.

Along one side and across the back of the original plant which had a total of 160,000 square feet of office and factory space, Vultee is now building an "L" shaped addition which will provide 520,000 square feet of additional plant area which will make a total of some 680,000 square feet in the entire plant.

The outside walls of the enlarged plant will be approximately 880 feet by 700 feet, and a basement will extend under a goodly portion of the structure. It is planned to have the building ready for use early in January of 1941.

In harmony with the tempo of national defense activity, excavation is being rushed and basic construction activities started before the final plans for the plant have been completed in minute detail. It is not possible at this time to state definitely just what will be included in the plant or what its final size will be. Rumors of further expansion are in the air and the architects have been called upon to be mindful in making

their plans that further enlargement is probable.

It is estimated that the new building and its equipment will cost approximately \$5,000,000 over the \$1,000,000 now invested in equipment and buildings on the thirty-six acre tract adjoining the Nashville municipal airport.

The building will be of modern factory construction of red brick with steel frame and glass outside walls. A reinforced concrete floor is to be laid over the basement and concrete over earth fill in other sections.

Clear manufacturing space, uniform daylighting and adaptability for further expansion are among the chief factors in the minds of the builders. That the architects are preparing to accommodate in this new plant the larger planes that are expected to be developed, is evidenced by the length of the roof trusses which span distances of 125 to 230 feet. The trusses range from 24 to 30 feet above the floor level.

Heating in the original Stinson plant, which was designed by Marr & Holman and Albert Kahn of Detroit, was of the circulating warm air type, and it is expected that a similar plan will be used

in the addition. The warm air is distributed throughout the building by means of underground ducts, with flush type outlets located along the outside walls and column type outlets at the base of the center building columns. In this manner all space possible is conserved for the business in hand; namely, making the maximum number of military planes in the area available.

The plant is connected with the Nashville Municipal Airport by a concrete apron and is located about six miles from the city. Two service hangars, providing 29,000 square feet of floor space, located adjacent to the factory are used by the corporation.

A sewage disposal plant, providing for complete treatment, will be erected within two or three miles of the plant upon a site to be determined later.

The Tennessee plant will be operated as the Nashville Division of Vultee Aircraft, Inc., whose home office is in Downey, California. Stinson activities, now known as the Stinson Division of Vultee Aircraft, Inc., will be moved to Wayne, Michigan, in order to turn over the Nashville plant exclusively for production of military planes.

Vultee has attained a position of leadership in the military plane field by manufacturing fighters for the United States government and for several foreign countries. Pursuit planes, interceptors, attack bombers and advance

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Vultee Aircraft, Inc., manufacture a number of different types of airplanes including this one at right designated by the U. S. Army as Vultee Valiant 54, a training plane.



LABOR AND INDUSTRY IN WAR

MODERN warfare is no longer a mere conflict between two armed forces; it is a struggle between the entire resources of two or more nations. It has been authoritatively stated that war as conducted at the present time involves participation by the armed forces to the extent of only twenty-five per cent of the total effort, while civilian preparation of materials makes up the other seventy-five per cent. More and more the economic side of war is being stressed, with every available non-combatant being utilized in one form or another—in agriculture, manufacturing, mining, or commerce. Needless to say, the most important of these is manufacturing, as no army can do battle without plentiful supplies of munitions and equipment.

While considering plans for the perfection of our national defense, it is interesting to note the size of the labor force with which this country must compete. Estimates show that the Axis powers, Germany and Italy, with the supply of labor at their command, at present have a total of 3.6 billion man-hours a week, and that, as the labor supplies in the various conquered countries are absorbed, this figure may be raised as high as 4.8 billion man-hours a week. The United States, on the other hand, has a total of approximately 2.2 billion man-hours of work a week, which would be raised to 2.6 billion man-hours if the unemployed were absorbed and the labor supply reached the customary wartime proportion of fifty per cent of the population. It must be understood, however, that these figures are only estimates, arrived at by assuming the labor force works 60 hours per week in the Axis countries and 40 hours per week in this country and they do not, by themselves, reflect either per capita or total production.

On the other hand, the United States, because of its greater use of machinery in manufacturing, has a labor force whose per capita output is probably the greatest in the world. Therefore, if we are to compete successfully with the Axis powers in the manufacturing of war materials, we must rely more and more on our superior mechanical production.

Even so, the actual and potential manufacturing output of Germany is not to be underrated. On the contrary, although hindered by a lack of raw materials and inadequate foreign exchange, Germany's output has been exceedingly large. To accomplish this, it has been necessary to employ extreme measures. Therefore, in contemplating the possible necessity of

facing Germany as an antagonist in the production of defense materials, it is not only interesting but essential that we should understand the measures which have made this production possible. These are measures which could be enforced only in a totalitarian state. Expressed otherwise, such a degree of man-hour production can never be expected in the United States, and for that reason if for no other, our mechanized production should be geared to the highest possible level.

The chief reason why Germany and Italy have been able to outdistance the United States with regard to man-hours despite a smaller population has been long working hours. American labor works a forty hour week, and while Germany professes that her labor works on a forty-hour week basis, she admits that under "exceptional circumstances" the hours may be extended. According to the figures, exceptions must have become the rule.

In order to understand what Germany as leader of the Axis group has gone through in her rearmament program, it is necessary to go back to the ideology back of totalitarian government, and to trace the history of several different labor situations and regulations. Under the totalitarian theory, each and every individual within the state is completely subject and subjugated to the will of the state. This is just as true of labor as it is of any other part of German life.

The Nazi philosophy is that the employer and employee, being engaged in an enterprise considered as an organic entity primarily designed to benefit the state, are working in harmony for the common interest. In furtherance of this philosophy, the National Labor Law, one of the first measures instituted by the Nazi regime, abolished all trade unions. Taking their place to a certain degree were advisory shop councils, which included employers' associations as well as the laborers. At the outset these councils were to be elected every six months, and there actually were two elections. However, the last one was in 1936, and in 1938 a decree was issued postponing these elections indefinitely.

Up to 1937 these councils had possibly justified their existence by keeping normal peacetime production relatively up to the level which the state desired. However, with the trend changing to that of military preparation, and with an infinitely greater necessity for self-suffi-

ciency, these measures did not prove adequate to accomplish the needs and the wants of the government. Construction of military centers and other defense projects entailed a considerable shifting of the labor force, but German labor was no different from that of any other country in that it did not want to migrate constantly. As a consequence, the German government was forced to take steps to meet the emergency.

As early as 1934, the Nazis realized that one of their most serious problems in the future would be food, if indeed it were not one already. To deal with this situation, a set of laws was issued which put agricultural workers, past and present, directly under the control of the government. German government officials had the power to require the dismissal of former farm workers from other employments, to prohibit certain ex-farm workers from engaging in other forms of labor, and to transfer workers from public works to farm work. In some instances, labor districts were closed to non-resident workers.

One year later what was perhaps the most revolutionary step was introduced. The government inaugurated a system of labor passports, which made possible a close check on all shifting, or attempted shifting of labor. Intended at first as a mechanism to survey labor conditions and trends, these labor passports soon became the agent for the strictest government control of labor in the world.

In 1936 it was apparent that a shortage of skilled labor was imminent, if not at hand, and again the government took steps. The Employment Service was given full say as to whether a skilled worker could be employed or not, and also was empowered to return metal workers employed elsewhere to the metals industry, if their services were needed. This was the first of many uses of the labor passport as a whip cracked over labor's collective head. At the same time, a decree was issued prohibiting anonymous advertising for skilled workers.

Another step was taken to increase the supply of skilled labor in January, 1937, when enterprises engaged in the iron, metals, and building industries were obliged to take on apprentices and compile statistics of their records.

In 1938, with the rearmament program in an advanced stage and war threatening, the government was forced to crack down in earnest. The first law which was is-

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PLASTIC SHEETING WITH LOUVERS FOR LIGHTING FIXTURES

A NEW type sheeting has been developed in "Plastacelc" cellulose acetate plastic, with which it is possible for the first time, it is said, to combine the efficiency of direct lighting with the comfort of indirect lighting.

Very thin parallel translucent louvers or "slats," either white or colored, running through the depth of a clear transparent sheet at right angles to the surface, makes possible this new eye comfort and brings other previously unattainable qualities to the lighting fixture

with an opal material with the directional efficiency obtainable with a clear material.

"Louverglas" is said to be the best material found to date for direct lighting fixtures for the new fluorescent lamp for which it is primarily intended. For this purpose a new method of directional control is required because of the continuous linear source of light.

According to the angle from which smooth-surfaced "Louverglas" is viewed, it appears as a transparent sheet with fine, parallel, translucent hair lines, which are the louvers, running through it; or as a completely translucent surface due to the louvers overlapping one another like the slats of a closed shutter; or in various proportions of translucency and transparency between these two.

In proper fixture design the sheeting appears entirely translucent within the normal field of vision, cutting off all glare. Direct light rays are confined to the area which it is desired to illuminate. With these rays penetrating, as they do, directly through the transparent sections between the louvers, extremely high light transmission is retained.

A variation is embossed "Louverglas," differing only in that one surface of the plastic sheet has a prismatic finish.

Forty tiny light-controlling prisms per inch serve to obscure the interior construction of the fixture, viewed from any angle; and to break up the light so that there are no eye-straining reflections or bright images. Both the prisms and the louvers are so small that neither is perceptible as such in fixtures viewed at normal distances.

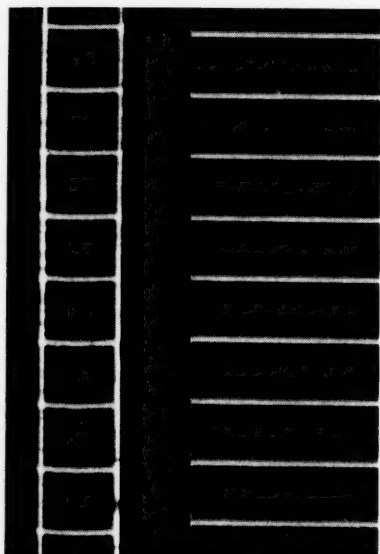
For purposes where it is desired to cut off glare from all directions to the normal field of vision, one sheet of smooth-surfaced "Louverglas" may be used on top of another, with the louvers forming an egg-crate pattern.

Another innovation is "Louverglas" combining clear transparent plastic with colored louvers, making possible for the first time color in fixtures which direct softly diffused light toward the eye, while shedding white light on the objects which it is desired to illuminate.

Of special interest is "Louverglas" with pink louvers. It overcomes the unflattering and off-tint appearance given by fluorescent lighting to objects of reddish and brownish hues, because of the insufficiency of red light afforded by fluorescent lamps.

Sheeting with black louvers, with which only direct light transmission is

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Louverglas magnified eight times. Edge view (left) and direct view of sheet (right). Very thin, parallel, translucent lines or slats run through the depth of the clear transparent sheet at right angles to its surface. At right is shown a girl behind two identical sheets, the upper one being so placed with the lines running horizontal that it appears quite transparent while the lower one is tipped at an angle so that the louvers appear to overlap one another and present a translucent sheet.

field. The material also opens new possibilities in vision control.

This sheeting, called "Louverglas," was conceived by L. C. Doane, president of the Doane Products Corp., and developed in collaboration with the research staff of the plastics department of E. I. du Pont de Nemours and Co. It is claimed to be the first material to combine in large measure the diffusion obtainable



Wider Markets for Southern Kraft With New Wood-Pulp Bleach

THE development of a new bleaching agent for wood pulp, sodium chlorite (NaClO_2), now makes possible the production of kraft stock that is both white and strong.

This strong, white kraft is a new product. Heretofore, kraft paper made from southern pulp had to be of a decided yellowish color if it were to retain its characteristic strength, and really white paper was made with difficulty from the high-grade, high-priced kraft pulp imported from Scandinavia, and now no longer available, due to war conditions.

Kraft, at present, is essentially limited to uses where strength is of importance but color is not, as with ordinary wrapping paper, paper bags, and containers. But a strong kraft of high "brightness," in either white or colors, should command much wider markets, not only in the packaging, converting, and container fields, but elsewhere as well.

Printers may, for example, find numerous uses for straight white kraft paper, as it will enable them to produce good looking jobs for unprecedented strength. It is also likely that white kraft pulp will be combined with other pulps, soda, sulphite, rag, and perhaps, even mechanical pulp, to produce papers that are stronger, stiffer, and also cheaper than corresponding grades now in use. Experiments indicate that the problems arising from the shortages of rags and Scandinavian pulps in this country may be partially solved in

this way, and American producers of kraft will be the beneficiaries.

Other kinds of wood pulp can also be improved by the chlorite bleaching process. Sulphite pulp, so treated, will yield a whiter paper, of maximum strength and excellent color retention; soda pulp will yield a stronger, whiter, bulkier, and more opaque paper; and pulp with a higher content of alpha-cellulose can be supplied for industries requiring a high percentage of this factor.

Chlorite makes these improvements in the quality of wood pulps possible because it acts somewhat differently from hypochlorite, the bleaching agent now universally used for wood pulp bleaching.

Hypochlorite is a powerful oxidizing agent. When used to bleach wood pulp, it will first attack the associated coloring matter, but, before this is completely destroyed, it will begin to attack the wood pulp fibers themselves. Hence, with hypochlorite bleaching, the process must be very carefully controlled and stopped before the fibers have been seriously weakened.

With chlorite bleaching, no such care is required. Though powerful enough to destroy all the coloring matter of wood pulp, it is not strong enough to damage

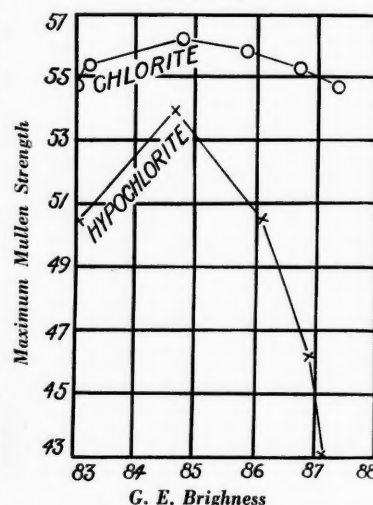
the fibers themselves under any circumstances. In consequence, chlorite bleaching can be continued until high brightnesses are obtained, without danger of weakening the fibers or decreasing other qualities of the pulp.

BY

G. P. Vincent

The Mathieson Alkali Works, Inc.

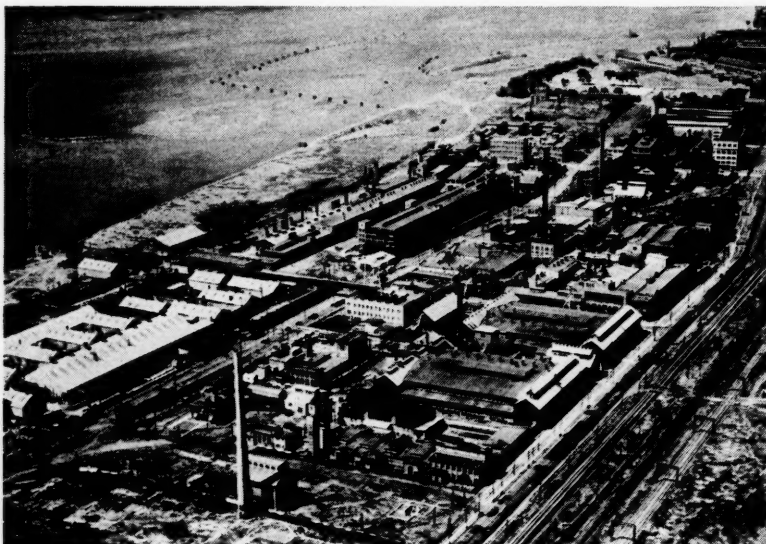
Hypochlorite & Chlorite Bleaching compared.



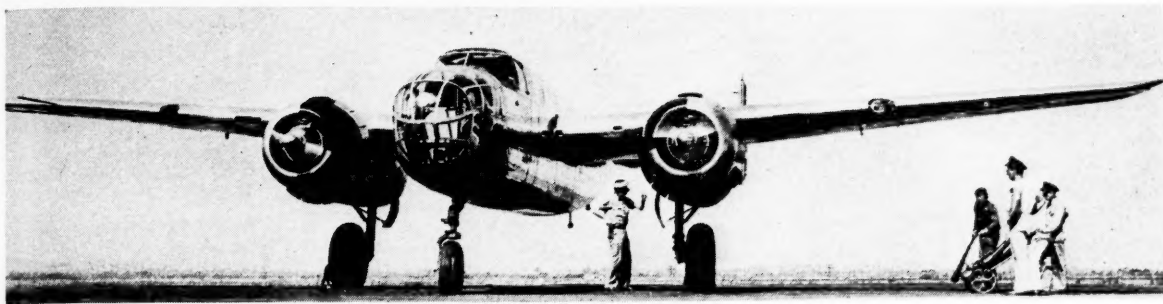
Chlorite is supplied in a form suitable for use in bleaching wood pulp under the trade name, C2. The preferred method of bleaching kraft pulp with it is as follows:

The pulp is first bleached with hypochlorite in the ordinary manner, taking care, however, to stop the process before any material damage is done to the fibers. The partly bleached pulp is then treated with C2 until the desired brightness is obtained. About 8 lbs. of C2 per ton of pulp is the quantity usually needed.

It is also possible to bleach the pulp in a single step with existing equipment by using a mixture of hypochlorite and C2. Because of the chemical reactions between these two compounds, the vigor of the action of hypochlorite is reduced, and high brightnesses without loss of fiber strength is the result. C2 can also be used with chlorine, although this method does not yield brightnesses as high as the others.



A \$400,000 addition is shown under construction to this Niagara Falls, N. Y. plant of Mathieson Alkali Works solely for the manufacture of sodium chlorite. Other Mathieson plants are located at Saltville, Va., and Lake Charles, La.



\$7,000,000 AIRPLANE PLANT FOR TEXAS

NORTH American Aviation, Inc., Inglewood, Calif., aircraft manufacturing concern now making preparations to construct a \$7,000,000 warplane factory at Henley Field, near Grand Prairie, Texas, has awarded the general contract to James Stewart & Co., Inc., of New York, it is announced by Ronald L. Burla, assistant to J. H. Kindelberger, North American president.

Ground for the project, which will be the first important plant of its kind in Texas, was broken on September 28 by Ernest R. Breach, chairman of the board, when it was announced that equipment and supplies totaling more than \$2,500,000 were being purchased from Dallas concerns.

Among the concerns, according to the announcement, were the Briggs-Weaver Machinery Co.; Hamilton-Houster Machinery Co., and the Machinery Sales and Supply Co. Steel for the great new factory, which is to include six units, is to be furnished and erected under a contract subsequently let to Muskogee Iron Works, of Muskogee, Okla.

Scheduled for completion by March of next year, the proposed plant was described by Mr. Kindelberger as "the finest airplane plant ever built anywhere." Its layout includes a 960 by 870-foot main building with 880,200 square feet of space; a 45,000-square foot hangar; a 15,000-square foot drop hammer building; a 25,000-square foot foundry; a 12,000-square foot paint storage and mixing building and 8,400 square feet of office space.

The main building will house the engi-

neering manufacturing, final assembly and warehousing operations. In the 576 by 960-foot manufacturing section will be carried on all fabricating work, such as material preparation, sheet metal fabrication, wing and center section assembly, engine installation, machining, welding and painting.

The area to be devoted to final assembly will be 150 feet wide by 960 feet long, the width to be clear without columns, necessitating 150-foot trusses. All but 300 feet of the length of the final assembly room will have a 25-foot clearance. Clearance of the balance of the length will be 16 feet. Above this portion will be located the engineering department. The 16-foot clearance will also prevail in the 144 by 960-foot warehouse area.

There will be no windows in any of the units, which with exception of a part of the main building will be of single story height. A volcanic ash tile block is to be used in the exterior walls. Five-inch thick reinforced concrete floors will rest on a three-inch cushion of sand. The steel deck of the roof will consist of two and one-half inches of asphalt dip cane fibre insulation with a tar and gravel covering.

Approximately 700,000 square feet of the factory space will be completely air

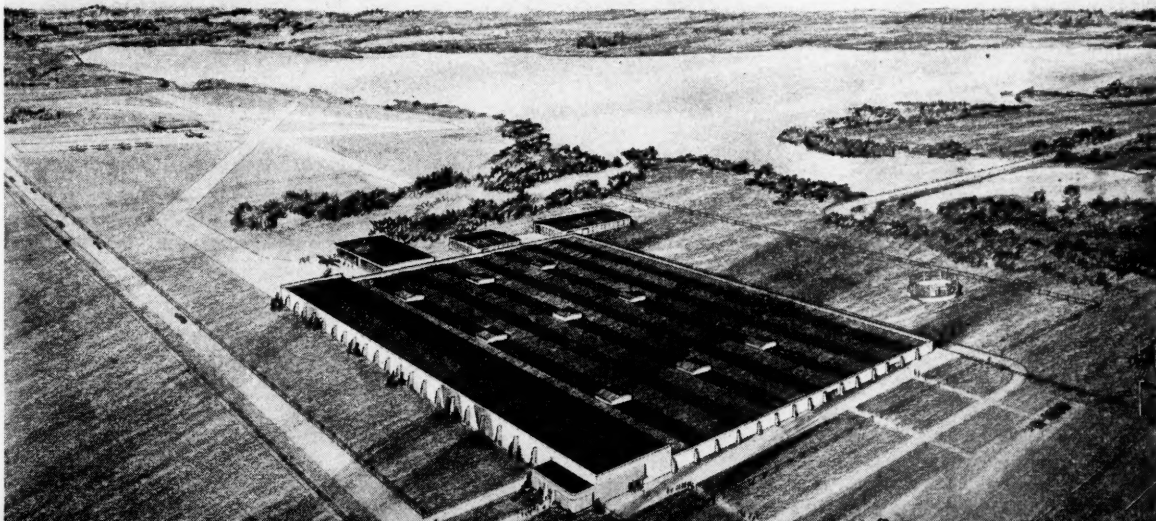
conditioned. The air conditioning units are to be built into the roof trusses and will have a per minute capacity of 125,000 cubic feet of air. The system is to be used in winter for heating purposes. Both the paint shop and the office building will be provided with separate conditioning units.

Three 1,000-watt diesel generating units will be installed as standby and emergency power. Fluorescent lighting of the latest type will insure 26-foot candle light on the working plane throughout the plant. Special 40-foot candle lighting is to be installed where precision work is to be performed.

Allen and Kelley, of Indianapolis, Ind., are architects for the work, with Rollins & Forrest, of Dallas, collaborating on the engineering. The Argonaut Realty Co., subsidiary of General Motors Corp., is understood to be supervising the project.

Officials of the Dallas division of North American Aviation will be Alexander T. Burton, division manager, a native of Alabama and graduate of the University of Alabama; James Rivers, plant superintendent, a Pennsylvanian, who has been associated with the aviation industry since 1919; Kenneth Bowen, production manager, a native of England and formerly with various British aircraft companies; Charles E. Kindelberger, assistant superintendent, a West Virginian civil engineer; Walter Smeton, assistant superintendent, a Baltimorean, and J. S. Smithson, factory manager, who was born at Barstow, Calif., and has worked his way to the top from drafting department tracer.

Above—North American Aviation's new B-25C2 Twin Engine Attack Bomber warms up for a test flight. Below—Perspective drawing of the new factory to be erected at Henley Field.





Interior of unit No. 1, the manufacturing building erected for Singer Manufacturing Company at Poinsett Lumber and Manufacturing Company, Pickens, S. C. The latter company, which is a subsidiary of the Singer Company has acquired approximately 60,000 acres of timber lands in Pickens county where lumbering will be carried on on a permanent basis to provide cabinet timber which will be used for both domestic trade as well as the South American export trade.

Westinghouse Doubles Radio Plant Space for Preparedness

First of three new buildings at the Westinghouse Electric & Manufacturing Company's Radio Division in Baltimore is now completed aiding the Government's preparedness program by doubling the Company's production facilities for special Army and Navy radio equipment.

Ninety workers erected the temporary timber structure in 45 working days after the first foundation pile was driven. The building will provide 34,000 square feet of additional radio manufacturing space and employment for approximately 300 persons, stated George H. Parkman, Westinghouse construction engineer.

Mr. Parkman also announced that two additional two-story brick and steel buildings are scheduled for completion at the Radio Division before November 15, adding approximately 35,000 feet of manufacturing, laboratory and office space. "This new construction," he stated, "is being rushed on an emergency basis primarily to meet production demands resulting from increased Government preparedness orders."

Equipment, including special machine tools, is already being placed in the new factory building.

The building is 285 feet long and 120 feet wide, its foundation resting on 90 35-foot wood piles. Its roof is supported on 60-foot spans from center columns. Special solar-heat absorbing glass has

been used in the windows to reduce summer heat inside the plant.

One of the buildings nearing completion is a laboratory, 90 by 140 feet, in which some 200 engineers and technicians will be employed on Government radio development work. The other is a new office building containing 10,640 square feet of floor space. Foundations for both buildings were started August 15.

With completion of the building program, the Westinghouse Radio Division will have 135,000 square feet of manufacturing space and 33,000 square feet of office space.

New Steel Barrel Plant for Port Arthur, Texas

Gulf Coast Steel Barrel Company, newly-chartered subsidiary of Jones-Laughlin Steel Corporation, will have in operation by Dec. 1, a \$300,000 manufacturing plant at Port Arthur, Texas, that may be only a first unit in possible future developments.

Now under construction, the plant will have an hourly capacity of 250 steel barrels—a carload—and will employ 150 men. It will serve primarily the petroleum industry in the Southwest.

Sheet steel for the plant will be barged down the Ohio and Mississippi rivers and through the Intracoastal Canal to Port Arthur. The fabricated products—steel barrels of from 15 to 55 gallon capacity—will be distributed by rail and water to

consuming points in the South.

Roy E. Hurd, president, praised the plant location here as a possible site for a southern terminus for the large steel corporation and said: "Not only are there many great industrial plants in this area, with more being built all the time, but this would be an ideal location for trade with South America."

The present building, 275 feet in length and 75 feet in width, is situated on a 10-acre tract fronting the ship channel. Thomas Bate and Sons of Houston, of which E. E. Echols is construction superintendent, are erecting the structure.

Pennsylvania - Central Starts Norfolk-Knoxville Air Line

Pennsylvania-Central Airlines will inaugurate air service between Norfolk, Va., and Knoxville, Tenn., beginning November 1.

C. Bedell Monro, president, said that officials of the air line have made preparations for the establishment of air terminals at intermediate points, including Rocky Mount, Raleigh, Greensboro-High Point, Asheville and the western terminal point at Knoxville. This includes the establishment of passenger terminal facilities, reservations and ticket offices and a network of radio communications which will bind the seven cities on the new route.

Twin-engined Boeing transports will be used at the start of service.

Carolina Power & Light Company Promotions

H. G. Isley, connected with the Carolina Power and Light Company for the past 21 years, has been named general sales manager succeeding S. P. Vecker, now vice president, according to announcement by L. V. Sutton, president of the company.

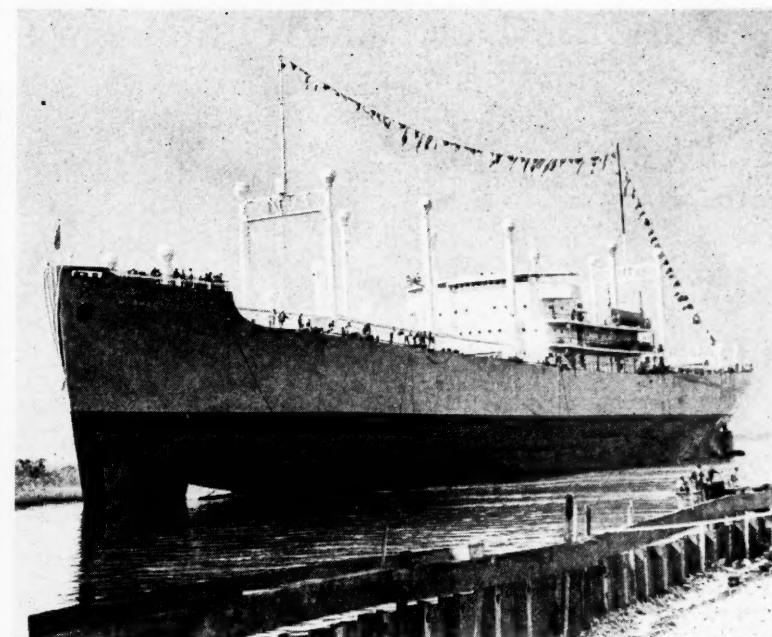
Mr. Isley had been residential and commercial sales manager since 1935 and prior to that time had served as an appliance salesman in addition to holding other posts. In his new position he is in general charge of domestic, commercial and industrial sales.

Other promotions included the following: C. N. Rackliffe, former manager of industrial sales, assistant to Vice President Vecker; W. Paul Lyman, manager of industrial sales; T. B. Smiley, manager of domestic sales; M. H. Hicks, manager of commercial sales.

Iron Ore Reduction Plant For Texas

Construction of a commercial plant in East Texas to utilize the Madaras process of iron ore production, using natural gas as fuel, will be recommended by directors of the Madaras Steel Corporation of Texas to the stockholders, and engineers already are at work preparing preliminary plans for the plant and machinery, Hubert M. Harrison, vice-president and general manager of the East Texas Chamber of Commerce announced here today. Tests of the Madaras process in a pilot plant at Niagara Falls, N. Y., were pronounced by engineers and directors of the company to be "entirely satisfactory."

"Location of the first commercial plant will be left entirely to the judgment of the



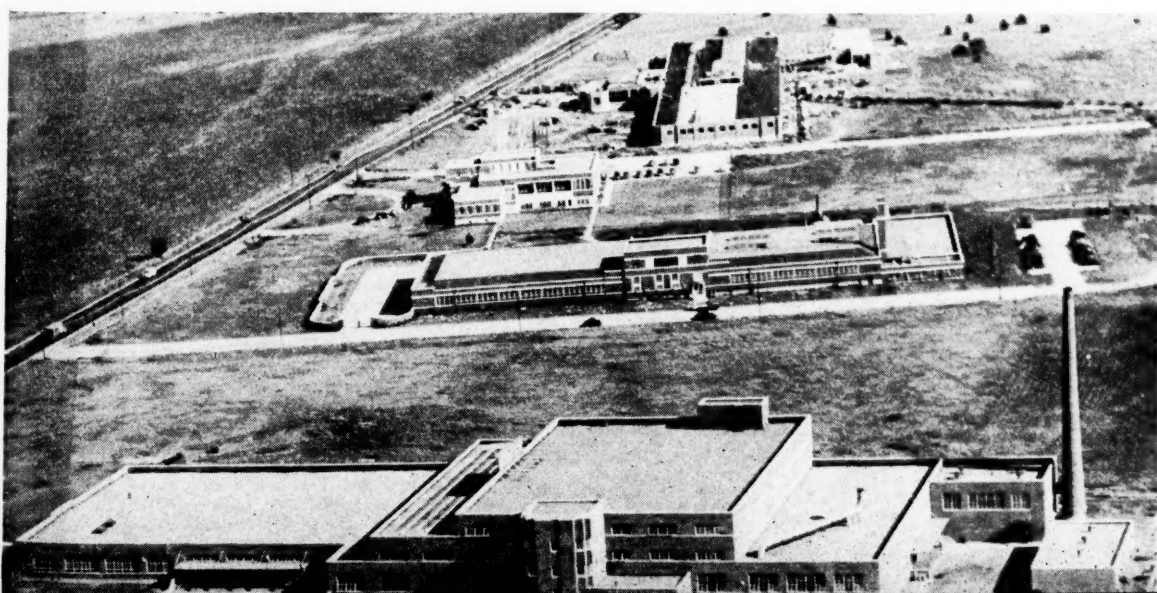
The S. S. Mormactide on its way to the outfitting dock after being launched at the Pascagoula, Miss., shipyards of the Ingalls Shipbuilding Corporation. With a length of 492 ft., breadth of 70 ft., draft of 28 ft., and displacement of 17,600 tons, the ship has accommodation for 12 passengers in four staterooms with baths. Built to operate between New York and the east coast of South America, the vessel is provided with refrigerated space for perishable foods and has a speed of 17½ knots. Other ships now under construction at this yard include two 18,000-ton passenger vessels and three others are yet to be built for the New York-South African trade.

engineers for the corporation," said Mr. Harrison. "They will determine the location, basing their decision solely on engineering and economic factors as related to the success of the plant. The East Texas Chamber of Commerce has been authorized by the directors of the corporation to receive briefs from all towns and cities interested in obtaining location of plant, and these will be submitted by the

East Texas Chamber to the company's engineers for their final determination. The making of necessary surveys and construction plans for the plant will require several months at least, before actual construction can begin."

The Madaras Steel Corporation of Texas is capitalized at \$250,000, and all of its stock has been privately subscribed.

One of Dallas' new, rapidly developing industrial districts. In the immediate foreground is the Coca Cola Company's syrup plant, completed early in 1939. Next in order are: The Manor Baking Co. plant, completed in September, 1940; the office building and laboratories of Campbell-Taggart Associated Bakeries, Inc., completed early in 1940; and the \$500,000 pants factory of the Haggar Company, under construction. Together, the new plants represent a total investment of about \$2,500,000. Built in harmonious architectural design, they are all set in landscaped parks. This new district is at Lemmon Avenue and Mockingbird Lane.



National Defense Program Awards in the South

September 16 to October 15 inclusive

ALABAMA			
Unit	Manufacturer	Item	Amount
Qtmtr. Corps	Taylor Iron Works & Supply Co., Macon, Ga.	Elevated Steel Tank, Southeast Air Depot, Mobile	\$29,444
Ordnance	Kilby Steel Company, Anniston	Ammunition Components	694,000
Qtmtr. Corps	California Cotton Mills Co., Uniontown	Parts for tents	3,933
Supplies & Accts.	J. W. Wells Lumber Co., Montgomery	White ash	15,155
" " "	J. W. Wells Lumber Co., Montgomery	Boat planking	9,931
Qtmtr. Corps	Charles L. Levy Co., Inc., Selma	Serge trousers	5,945
Bureau of Ships	Gulf Shipbuilding Corp. Plant, Chickasaw	For rehabilitation of ways, buildings, shops, cranes, and other equipment (Government owned)	2,500,000
Supplies & Accts.	J. W. Wells Lumber Co., Montgomery	White oak	9,290
FLORIDA			
Qtmtr. Corps	A. J. Miller Auto Cruiser Co., Bradenton	Trailers	20,197
" "	John T. Mapel, Miami Beach	Electric distribution and street lighting system at MacDill Field, Tampa, Fla.	72,925
GEORGIA			
Qtmtr. Corps	Taylor Iron Works & Supply Co., Macon	Elevated steel tank, Southeast Air Depot, Mobile, Alabama	29,444
Ordnance	Scripto Mfg. Co., Atlanta	Ammunition components	1,094,000
Qtmtr. Corps	Carwood Mfg. Co., Winder	Denim working coats	40,459
Supplies & Accts.	Reynolds & Manley Lumber Co., Savannah	Boat-planking	8,355
Qtmtr. Corps	Lowell Bleachery Company, Griffin	Bath Towels	23,130
" "	Empire Manufacturing Co., Winder	Aprons	8,400
" "	Union Mfg. Co., Union Point	Light woolen socks	9,995
" "	Riverside Mfg. Co., Moultrie	Cotton mattresses	20,300
" "	Bartholomew Construction Co., Inc., Dallas, Texas	Sewage treatment plant, Fort Benning	59,250
" "	Marcus Loeb & Co., Inc., Atlanta	Serge trousers	8,806
KENTUCKY			
Qtmtr. Corps	Detroit Incinerator Co., Detroit, Mich.	Incinerator at Fort Knox	15,015
Corps of Engrs.	Belknap Hdw. Co., Louisville	Misc. tools	4,968
Qtmtr. Corps	American Cap Mfg. Co., Louisville	Serge field caps	1,795
" "	Louisville Tin & Stove Co., Louisville	Stoves	19,639
" "	General Shoe Lace Co., Louisville	Brown cotton laces	6,550
" "	Logan Company, Louisville	Steel folding cots	268,200
" "	Shannon Spring & Bed Co., Louisville	Steel folding cots	49,350
" "	Kane Mfg. Co., Louisville	Serge trousers	5,797
LOUISIANA			
Qtmtr. Corps	Equitable Equipment Co., Inc., New Orleans	Steel cargo barge	14,000
" "	Equitable Equipment Co., Inc., New Orleans	Single screw diesel steel tug	128,550
" "	Allen Boat Co., Inc., Gretna	Steel tug (Diesel)	40,450
" "	Higgins Industries, Inc., New Orleans	Boats	520,000
MARYLAND			
Air Corps	Glenn L. Martin Co., Baltimore	Bombers and spare parts	14,269,646
Chemical Warfare	Baltimore Machinery Works, Baltimore	Water pumps	5,795
" "	American Type Founders Sales Corp., Baltimore	Power paper cutters	1,169
" "	Robert S. Green, Inc., Baltimore	Portland cement	1,639
" "	Carey Machinery & Supply Co., Baltimore	Repair parts for air compressor	1,642
" "	Federal Tin Co., Baltimore	Gas masks components	42,308
Air Corps	Fairchild Engine & Airplane Division, Fairchild Aircraft Corp., Hagerstown	Airplanes	6,672,200
Ordnance	Revere Copper & Brass Co., Inc., Baltimore Div., Balto.	Ammunition components	5,758
Qtmtr. Corps	Biltwell Tailoring Co., Baltimore	Wool overcoats	71,271
Air Corps	Glenn L. Martin Co., Baltimore	Airplanes	99,641,881
Qtmtr. Corps	S. Rosenbloom, Inc., Baltimore	Light serge trousers	26,987
Ordnance	Eastern Rolling Mill Co., Baltimore	Artillery ammunition components	1,883,000
" "	Revere Copper & Brass Co., Inc., Baltimore Div., Balto.	Ammunition components	268,100
" "	Revere Copper & Brass Co., Inc., Baltimore Div., Balto.	Small arms ammunition components	115,769
Qtmtr. Corps	Anchor Mfg. Co., Inc., Baltimore	Denim working coats	163,170
" "	S. Rosenbloom, Inc., Baltimore	Denim working coats	96,734
" "	Anchor Mfg. Co., Inc., Baltimore	Denim working trousers	163,170
" "	S. Rosenbloom, Inc., Baltimore	Denim working trousers	122,877
Supplies & Accts.	Pittsburgh Plate Glass Co., Brush Div., Baltimore	Brushes	14,097
" " "	Bendix Radio Corp., Baltimore	Radio equipment	9,353
" " "	Alumite Co. of Maryland, Baltimore	Gun fittings	24,104
" " "	Mt. Vernon Woodberry Mills, Inc., Baltimore	Cotton duck	8,250
" " "	The Alexander Milburn Co., Baltimore	Cylinder regulators	43,175
Marines	Revere Copper & Brass Co., Inc., Baltimore Div., Balto.	Copper tubing	96,360
Ordnance	The Waxaid Co., Baltimore	Floor wax	552
" "	Revere Copper & Brass Co., Inc., Baltimore Div., Balto.	Ammunition components	34,775
Qtmtr. Corps	Triumph Explosives, Inc., Elkton	Ammunition components	400,160
Signal Corps	Bendix Radio Corp., Baltimore	Radio equipment	3,565,893
Chemical Warfare	Bendix Radio Corp., Baltimore	Radio set components	246,642
" "	United Clay & Supply Corp., Baltimore	Building materials	2,089
" "	Novelty Steam Boiler Works, Baltimore	Installation to machinery	1,605
" "	L. A. Benson Co., Inc., Baltimore	Milling machines	4,996
Qtmtr. Corps	Mt. Vernon Woodberry Mills, Baltimore	Duck for pyramidal tents	196,843
" "	Stuart Keith Corp., Baltimore	Serge trousers	8,582

Qtmtr. Corps	Lamm Brothers, Inc., Baltimore
Marine Corps	I. S. Turover, Bethesda
Supplies & Accts.	Baltimore Brushes, Inc., Baltimore
Yards & Docks	General Elevator Co., Inc., Baltimore
Supplies & Accts.	Winslow-Knickerbocker Coal Co., Baltimore

MISSOURI

Qtmtr. Corps	International Shoe Co., St. Louis
" "	Brown Shoe Co., St. Louis
Air Corps	Standard Steel Works, North Kansas City
Ordnance	Atlas Powder Co., Webb City
Air Corps	Curtiss Wright Corporation, St. Louis
	Airplane Division, Robertson
Qtmtr. Corps	Knickerbocker Clothing Co., St. Louis
" "	Premium Cap Co., St. Louis
" "	Union Cap Co., St. Louis
" "	Society Brand Hat Co., St. Louis
Ordnance	Mines Equipment Co., St. Louis
Qtmtr. Corps	C. J. Moritz Heating Co., St. Louis
" "	Wackman Welded Ware Co., St. Louis
" "	Brookfield-Garrison Mfg. Co., Warrensburg
" "	Burlington Mfg. Co., Kansas City
" "	The Alligator Co., St. Louis
" "	Empire Cap Mfg. Co., Kansas City
Marine Corps	C. Hager & Sons Hinge Mfg. Co., St. Louis
Supplies & Accts.	Fred Medart Mfg. Co., St. Louis
" "	Shelfield Steel Corp., Kansas City
Ordnance	S. G. Adams Co., St. Louis
Qtmtr. Corps	Royal Bedding Company, St. Louis
" "	Kanter Bedding Co., Kansas City
" "	Jackson-Evans Mfg. Co., St. Louis
" "	Premium Cap Co., St. Louis
Air Corps	H. D. Lee Mercantile Co., Kansas City
" "	Columbian Steel Tank Co., Kansas City
Corps of Engrs.	Baker Lockwood Mfg. Co., Kansas City
Qtmtr. Corps	Chaffee Mfg. Co., Chaffee
" "	Glaser Bros., Inc., St. Louis
" "	Knickerbocker Clothing Co., St. Louis
Supplies & Accts.	Curtiss-Wright Corp., St. Louis Airplane
" "	Division, Robertson
" "	Western Laundry Machine Co., North Kansas City
" "	The Kansas Flour Mills Corp., Kansas City

NORTH CAROLINA

Qtmtr. Corps	Cramerton Mills, Inc., Cramerton
" "	P. H. Hanes Knitting Co., Winston-Salem
" "	P. H. Hanes Knitting Co., Winston-Salem
" "	Mount Airy Knitting Co., Mount Airy
" "	Blue Bell-Globe Mfg. Co., Greensboro
" "	Blue Bell-Globe Mfg. Co., Greensboro
Yards & Docks	Carolina Steel & Iron Co., Greensboro
Qtmtr. Corps	Marshall Field & Co., Spray
" "	Carolina Handkerchief Co., Inc., West End
" "	Barnhardt Mfg. Co., Charlotte
" "	Cramerton Mills, Inc., Cramerton
Supplies & Accts.	A. A. Shuford Mill Co., Hickory
" "	Dacotah Cotton Mills, Inc., by J. W. Valentine Co.,
" "	Inc., as Selling Agents, Lexington

OKLAHOMA

Qtmtr. Corps	Swanda Bros., Oklahoma City
" "	Oklahoma Furniture Mfg. Co., Oklahoma City

SOUTH CAROLINA

Supplies & Accts.	Chapman-Storm Lumber Co., Monck's Corner
Yards & Docks	Carolina Steel & Iron Co., Greensboro, N. C.
Supplies & Accts.	Southern Weaving Co., Greenville
Qtmtr. Corps	Excel Hosiery Mills, Inc., Union
" "	Southern Handkerchief Mfg. Co., Greenville

TENNESSEE

Ordnance	The Wheland Co., Chattanooga
Qtmtr. Corps	General Shoe Corp., Nashville
" "	Southern Silk Mills, Spring City
Ordnance	Mueller Co., Columbian Iron Works, Chattanooga
Qtmtr. Corps	Standard Knitting Mills, Knoxville
" "	Appalachian Mills Co., Knoxville
" "	Standard Knitting Mills, Knoxville
Supplies & Accts.	Thompson-Katz Lumber Co., Memphis
Qtmtr. Corps	May Hosiery Mills, Nashville
" "	U. S. Bedding Co., Memphis
" "	National Rose Spring & Mattress Co., Memphis

Serge trousers	4,695
Lumber	1,321
Varnish brushes	18,876
For passenger elevator at the Naval	
Hospital, Newport, R. I.	12,758
Run of mine coal	5,318

Services shoes	505,600
Service shoes	377,250
Trailers	1,182,005
Explosives	514,750

Airplanes	45,646,882
Wool overcoats	21,384
Denim working hats	28,443
Denim working hats	9,239
Denim working hats	29,462
Fire control equipment	11,004
Heating installation in hangar,	
Scott Field, Illinois	6,192
Tent stoves	39,600
Working suits	9,779
Working suits	17,064
Dismounted raincoats, oil treated	247,352
Serge field caps	9,920
Hinges and hasps	650
Metal lockers	45,440
Bolts and nuts	47,124
Containers	1,005
Cotton mattresses	57,600
Cotton mattresses	29,803
Parts for tent stoves	22,334
Mechanics' caps	54,000
Flying suits	123,131
Steel buildings	37,280
Recreation hall tent tops	39,577
Serge trousers	8,068
Serge trousers	8,955
Serge trousers	14,850

Airplanes	3,674,566
Laundry equipment	12,003
Wheat flour	22,313

O. D. cotton cloth	43,313
Woolen drawers	81,774
Woolen undershirts	94,181
Woolen undershirts	45,770
Denim working coats	37,650
Denim working trousers	75,500
Extension of Crane Runways, Navy	
Yard, Charleston, S. C.	28,225
Bleached cotton sheets	34,720
Handkerchiefs	5,155
Surgical dressings	11,858
Cotton cloth	1,224,135
Twine, cotton	74,852

Cotton sheeting	15,048
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Heating system at Fort Sill	41,000
Cotton mattresses	40,298

Boat planking	13,625
Extension of Crane Runways, Charles-	
ton Navy Yard	28,225
Linen webbing	50,702
Light woolen socks	68,250
Handkerchiefs	16,763

Artillery material	1,500,000
Service shoes	254,000
Mosquito netting	48,506
Artillery ammunition components	1,008,655
Woolen drawers	44,918
Woolen drawers	83,866
Woolen undershirts	44,837
White ash	14,752
Light woolen socks	71,928
Cotton mattresses	21,250
Cotton mattresses	20,298

TEXAS

Qtmtr. Corps	Miller Bros., Inc., Houston	Light serge trousers	16,394
Marine Corps	Taylor Bedding Mfg. Company, Taylor	Mattresses	3,479
Qtmtr. Corps	Crawford-Austin Mfg. Co., Waco	Cotton mattresses	374,561
" "	Taylor Bedding Mfg. Co., Taylor	Cotton mattresses	586,552
" "	Denison Mattress Factory, Denison	Cotton mattresses	59,250
" "	Bartholomew Const. Co., Inc., Dallas	Sewage treatment plant, Ft. Benning, Georgia	59,250
" "	J. E. Morgan, El Paso, H. B. Zachry, Laredo	Tent camp and utilities, Ft. Bliss, El Paso	3,046,230
" "	National Pants Corp., Dallas	Serge trousers	1,962
" "	Haggar Company, Dallas	Serge trousers	16,716

VIRGINIA

Qtmtr. Corps	Craddock-Terry Shoe Corp., Lynchburg	Service shoes	163,300
Chemical Warfare	Miller Manufacturing Co., Inc., Richmond	Lumber and mill work supplies	1,291
" "	Virginia Rubatex, Bedford	Outlet valves	9,960
Ordnance	Radford Ordnance Works, Radford	Smokeless powder	24,550,000
Qtmtr. Corps	Lafayette Pants Co., Fredericksburg	Light serge trousers	8,311
" "	Bassett Knitting Corp., Bassett	Woolen undershirts	28,952
Yards & Docks	Euclid Crane & Hoist Co., Euclid, Ohio	10-ton crane at the Navy Yard, Norfolk	20,625
" "	Cleveland Crane & Engineering Co., Wickliffe, Ohio ..	3-ton crane and 2-ton Monorail, Navy Yard, Norfolk	3,570
Supplies & Accts.	Smith-Courtney Co., Richmond	Universal grinder	7,939
Marine Corps	Birmingham Dairy, Manassas	Quarterly subsistence	4,200
Qtmtr. Corps	Lynchburg Hosiery Mills, Lynchburg	Light woolen socks	11,976
Ordnance	Tredegar Co., Richmond	Ammunition components	25,901
" "	The Tredegar Co., The Tredegar Iron Works, Richmond	Ammunition components	42,224
Qtmtr. Corps	Hudgins-Dize Co., Inc., Norfolk	Manufacture of Pyramidal Tents ..	76,000
" "	Lafayette Pants Mfg. Co., Fredericksburg	Serge Trousers	5,667
Yards & Docks	Armstrong Cork Co., Washington, D. C.	Refrigeration & Cold Storage Rooms at the Marine Barracks, Quantico ..	12,950
" "	Smith-Courtney Co., Richmond	Grinders, Universal	19,167
Bureau of Ships	Newport News Shipbuilding & Dry Dock Co., Newport News	For Shipways, Pier, Cranes, Power Machine Shop, and other Equipment (Government Owned)	14,000,000
Yards & Docks	Jeffress-Dyer, Inc., Washington, D. C.	Additional Facilities at the Naval Proving Ground, Dalgren	372,000
" "	Virginia Engineering Co., Inc., Newport News & Wise Contracting Co., Inc., Richmond	Housing & Ammunition Facilities at the Naval Mine Depot, Naval Fuel Depot, Yorktown & Newport News	4,026,260

WEST VIRGINIA

Qtmtr. Corps	Wheeling Corrugating Co., Wheeling	Parts for Tent Stoves	23,486
Supplies & Accts.	J. L. Stifel & Sons, Inc., Wheeling	Slate Color Drill	20,760
Ordnance	Barium Reduction Corp., S. Charleston	Chemicals	107,900
Supplies & Accts.	Union Insulating Co., Parkersburg	Incandescent Lamps, Sockets, Plug Tips	15,568
Yards & Docks	Carnegie-Illinois Steel Co., So. Charleston plant	For Buildings, Machine Tools, and Furnaces (Government Owned)...	2,677,000
Supplies & Accts.	The Schilling Lumber Co., Parkersburg	White Oak	17,174
" "	The Anchor Lumber Co., Parkersburg	White Oak	23,493

A Charleston Sketch Book

Heretofore, Charles Fraser's reputation has rested largely upon his miniatures, an art in which he was unquestionably most proficient. As such he is known to a comparatively few people today. A few others perhaps will remember him for his writings about his native Charleston, S. C., while still fewer individuals may recall his landscape and genre pictures.

But now the situation is changed for this month there is published a small volume entitled "A Charleston Sketch Book, 1796-1806." This small book containing forty watercolor sketches, is actually a reproduction of Fraser's own Sketchbook during the period 1796-1806 and was started when Fraser was but fourteen years of age.

From an artistic point of view, the pictures are pleasing in spite of their immaturity, though their progressive character is quite discernable and even at that early stage of his career (he followed law until it gained him a competency in 1818 sufficient for him to de-

vote himself to painting) the characteristics of the budding miniaturist were decidedly marked with care and precision as was the mode of the day.

The greatest value of this charming little volume however, is the appeal it must necessarily have for the thousands of visitors who have visited Charleston—often out of curiosity and have stayed or returned to bask in that city's delightful picturesque atmosphere recalling all the pleasures and beauties of Charleston's and the South's yesteryear. Not all the scenes pictured here can still be seen, but with all that Charleston still retains, this volume, with its interesting introduction and notes accompanying each picture, will help Charleston's devotees to conjure more accurately a vision of the city and its surroundings that Fraser found so pleasant.

A Charleston Sketchbook 1796-1806. Forty watercolor drawings of the city and the surrounding country by Charles Fraser with an introduction and notes by Alice R. Huger Smith, Carolina Art Association, Charleston, S. C., \$5.00.

Compressor Unit for Spray Painting Equipment

The development of a new portable air compressor unit for operating small spray painting equipment is announced by The DeVilbiss Company, Toledo, Ohio. The new unit, which is designated the modern successor of the company's former NK outfit, is known as Type NKB and combines modern streamline design and high efficiency with a moderate price. Rated at one-half horsepower, it will serve as a companion-piece to the streamlined DeVilbiss NCB quarter horsepower outfit introduced last spring, thus widely extending radical improvements in design and efficiency being carried out by DeVilbiss in the small portable field. The NKB is encased in a streamline housing, is quiet in operation, weighs only 72 pounds and is particularly suited for interior and exterior painting in factories, stores, schools, apartment houses, etc., as well as for automobiles, furniture, refrigerators, trucks, buses and the like. It is equipped with rubber tired swivel casters. Actual delivery is 4.55 C.F.M. at 45 pounds, holding the medium spray guns at from 32 to 40 pounds, while maximum pressure is 50 pounds.

EDUCATING EDUCATION

DOES education need educating? When there are "twenty-two thousand ways of making a living in the United States," and there are "more than four million young people out of school and out of work," something is radically wrong.

Education is the will and equipment for living at one's best every day.

Two things, first the will, then the equipment. To have the equipment without the will is like a fine set of harness on a dead horse—it gets nowhere.

The first job of education is to build the man. He must be built on the inside. Character is of the first importance.

A boy should be educated to do what he can do best and enjoy most. This applies to every man, whether he is a white-collared man or blue shirt overall worker.

Efficient, willing workers do not reduce the number of jobs but actually create more employment. If the country was filled with idle, lazy and inefficient persons it would simply go to the dogs with nothing to do.

On the other hand, if every man would keep himself up to his best in every industry, efficiency would lift the whole country out of "the slough of despond" just as an individual or a family comes out from poverty and the back alley through sweat and industry on to the boulevards of better living.

You can furnish all the soap and water you like but a man who wants to be dirty will not keep clean. You can build all the schools you like, but the boy who despises learning and knowledge will never get an education. You may build a church on every corner, but the man who wants to go in the other direction will never enter one of them.

Until a man himself determines to be one of the "haves," he will continue to let you send in the sandwiches and round him up with the "have-nots."

We must have national preparedness, but our greatest of all needs is character preparedness.

It is character today that is enabling England to carry on her wonderful fight.

The stronger we are in character the less we need police force. Every nation that permanently perishes must first die within.

You cannot over-run character no matter how strong the opposition. You cannot keep a nation alive that loses its character no matter how strong its manufactured force.

Establish character within and shackles will fall from without.

When a man thinks more about his pay than he does about his job he is a failure before he begins.



BY

John J. Wicker

*President, Fork Union Military Academy,
Fork Union, Va.*

I once asked a young lawyer "Are you saving any money?" He replied, "I am so busy trying to become a lawyer I haven't had time to think about a dollar." Later this man was appointed to the District Court of the United States for the District of Columbia—a \$12,000 per annum lifetime job.

The schools of our country must go to work on the personality and character of their students. There must be as much, or more, inspiration as there is information, and those who teach must be compelling examples.

Many years ago Mark Hopkins said, "A university is a professor sitting by a boy on a log in the woods."

Since he made that statement that log has been carved into the finest of equipment—but what of the professor?

It takes something more than money to have education. We are in great need of what money can buy, but we are in greater need of what money cannot buy.

Unless a man has something money cannot buy or that time cannot take away, he is at best only a skillful animal—a living machine.

Equipment we must have, but if the material side of our educational institutions over-shadows the spiritual side, education will go the way of all other decaying things.

I have forgotten nine-tenths of all the things I learned in school, but my teachers are still my daily companions.

President Calvin Coolidge said, concerning our greatest need:

"I can conceive of no adequate remedy for the evils which beset society, except through the influences of religion. There is no form of education which will not fail. There is no form of government which will not fail. There is no form of reward which will not fail. We do not need more national development; we need more spiritual development. We do not need more intellectual power; we need more spiritual power. We do not need more knowledge; we need more religion. We do not need more of the things that are seen; we need more of the things that are unseen."

Every man has two hands. With one he makes a living. With the other he makes a life. If he makes a life, that will solve the problem of making a living.

Education depends on what it does with a man and what a man does with it.

Spencer said, "The great aim of education is not knowledge but action."

There are two great sciences with which we must deal as never before in the education of our country. They are sociology and biology. Neither one can be successfully legislated into character.

No social system can honestly set a man up economically unless his own sweat is put into it.

"Never do for any person more than that person is willing to do for himself"—unless you want to destroy what character he may have.

Theology, endeavoring to save a man's soul by a mere theological system, is no more at fault than a system of sociological education that ignores the fundamental laws of biology.

Man is made not by what you do for him but by what you prepare and inspire him to do for himself and others.

Having made the man we must equip him for the job. It is a well known fact that there are far more jobs demanding experts than there are men to fill them.

Recently a young friend of mine, employed as a personnel man, told me that his first day of service he examined twenty-five men and found only one man, and he only partly prepared, to do the jobs they needed men to fill.

Half, or less than half-trained clock-watchers, who are thinking along the line of least resistance while hunting for the biggest possible pay check, will not build up any business or make more jobs in our country.

The unfortunate part is that when a man is ill-prepared for a job, he is likely to lose interest in his work, and his path

(Continued on page 66)



RUSTLESS IRON & STEEL COMPLETES \$2,500,000 EXPANSION

THIS month the Rustless Iron and Steel Corporation of Baltimore, Md., will hold an open house inspection of a new \$2,500,000 addition to the only manufacturing establishment in the world which is devoted exclusively to the production of stainless steel and employing unique processes which include every step in the manufacture of stainless steel ingots, billets, bars and wire from the virgin chrome ore to the finished product.

Because a \$1,500,000 plant addition in 1937 increasing ingot capacity from 20,000 to 40,000 tons a year was found to be inadequate, further expansion was planned for increasing the capacity to 75,000 tons a year. Operations have been stepped up to the point where the number of employees has increased in the past two years from 450 to more than 1,400.

The program just completed involved the demolition of practically all former buildings to make way for larger and more modern industrial structures, and the plant has been almost entirely equipped with new machinery. Thus the first chapter of Rustless' industrial growth has been written entirely within the last ten depression years.

Rustless is believed to be the first company in the stainless steel industry to adopt the same straight line system of production which is to be found among the automotive makers. Each of the corporation's products passes in a straight flow of manufacture through its own separate channel of plant operation, thus eliminating superfluous movements of men and materials. From ingot heating to shipping department, bars and wire are produced within a single 1800-foot building.

In the straight line production system ingots first pass through a rolling mill where they are converted into billets. After being conditioned they are hot-rolled into bars and wire. These hot-rolled products then are annealed and pickled according to the specifications of individual customers. Stock which is to be cold finished is conditioned and then cold drawn or centerless ground. After a final rigid inspection the bars and wire are made ready for shipment.

When the management initiated its long-range expansion program in 1935 the corporation's principal producing equipment consisted of three six-ton electric furnaces, a 20-inch rolling mill and a five-stand nine-inch bar and rod mill. In that year the company had a melting capacity of 20,000 tons of ingots.

Melting facilities were changed in 1935 from the original

three six-ton furnaces to three of 12-ton each. Two 16-ton furnaces were added in 1940 which increased the annual melting capacity to 75,000 tons, nearly four times the capacity of five years ago and almost twice the capacity of 1937.

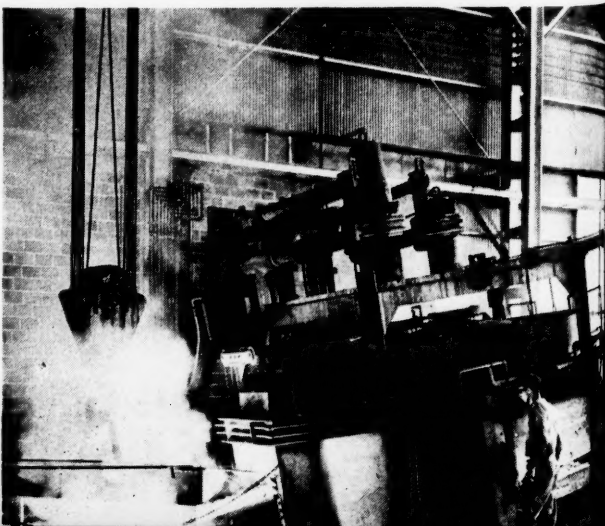
To the 20-inch and nine-inch mills which the corporation had in 1935 was added a 12-inch bar mill in 1937. A 28-inch mill has been added in 1940 to produce billets, sheet bars and slabs, as well as a three-stand 12-inch mill and a seven-stand nine-inch mill for the production of bars or coils.

Equipment added to the cold finishing department has more than doubled production, not including a new cold roll mill for the production of special bar and wire shapes to meet present-day conditions and customer requirements. Finished bar and wire capacity is now about 1,500 tons a month, between four and five times the capacity in 1935. Other operations have been increased proportionately.

Laboratory facilities have been expanded considerably in the last five years. New and larger laboratory buildings have been erected. A continuous series of check-tests is made on production material to assure uniformity and close adherence to specifications. An uninterrupted program of research also is carried on to explore the ultimate possibilities of stainless alloys and increase their use-value and serviceability to industry. Projects range from studies of the behavior patterns of various combinations of alloys, to investigation of new finishing processes, proper machining technique, and similar problems of customer utilization.

The Rustless method of stainless steel manufacture employs melting and other processes covered by patents or applications for patents which have been developed by the corporation's

Above—The Rustless Iron and Steel Corp., plant at Baltimore, Md., is the world's only exclusive stainless steel plant. Right—Tapping one of the five electric furnaces in the company's new melt shop.



Top—A specially designed charging machine withdraws hot ingots from the furnace and swings them to the mill table at right. Heating furnaces can be seen at left. Top center—Each of the ingots in the storage yard is completely identified as to analysis and heat. Lower center—Cold finishing department where hot rolled annealed bars are cold drawn through dies to secure close dimension tolerances and to improve surface finish and physical properties. Bottom—Wire stock being drawn through dies in the cold finishing department.

own chemical and metallurgical engineers. The exclusive melting processes permit the direct reduction from chrome ore of the chromium which gives to stainless steel its principal inherent qualities.

Rustless also has pioneered in the development and use of chrome ore produced from deposits in the United States and has been the sole user of domestic chromite for a number of years.

The corporation's products are sold in the form of billets, bars and wire to industrial users, jobbers, and distributors and in the form of ingots, blooms, slabs, billets and sheet bars to converting mills for further processing into sheets, strip and plates.

Until recently stainless steel was considered a part of the general steel industry, but its production has developed so rapidly in the last few years that it now stands apart as a separate industry in its own right.

Growth in the production of stainless steel as compared to the production of the entire steel industry is shown in the following table which is based on data published by the American Iron and Steel Institute. With 1934 production equaling 100 percent the comparative production of stainless steel and all steel shows:

	INGOT PRODUCTION Stainless Steel (Percents)	All-Steel (Percents)
1934	100	100
1935	132	131
1936	182	183
1937	280	194
1938	172	109
1939	321	181

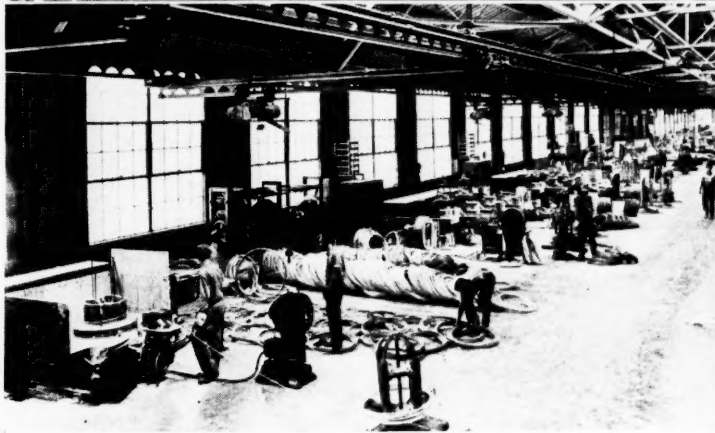
The following table shows the growth of Rustless' ingot production in comparison with the entire stainless steel industry:

	Stainless Steel Industry Ingot Production (Percents)	Rustless Iron & Steel Corp. Ingot Production (Percents)
1934	100	100
1935	132	230
1936	182	367
1937	280	507
1938	172	229
1939	321	790
1940—Yearly rate based on six months ending June 30, 1940	Unknown	998

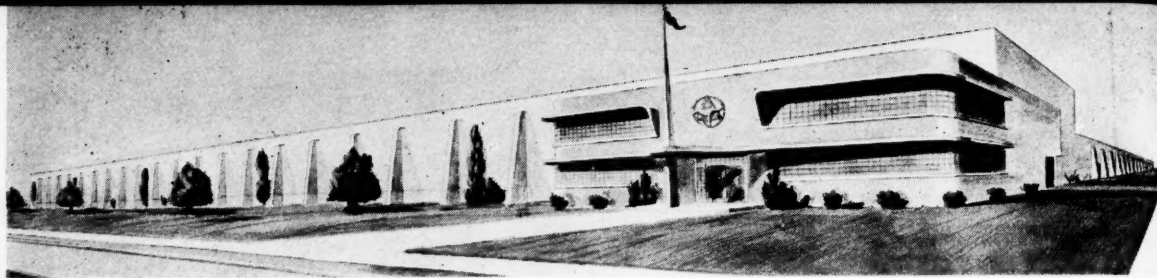
Officers of the Rustless Iron & Steel Corporation are: C. E. Tuttle, president and chairman of the board of directors; T. F. McLaughlin, vice president; M. K. Schnurr, secretary and treasurer; and M. J. Caden, comptroller.

Directors are: C. E. Tuttle, chairman, Bruce Borland, Charles R. Hook, C. S. Payson, J. A. W. Iglehart, W. W. Sebald and Calvin Verity.

Warehouse stocks of Rustless products are maintained by: Chicago Steel Service Company, Chicago; Ducommun Metals and Supply Company, Los Angeles; Peter A. Frasse and Company, Inc., New York, Philadelphia, Buffalo; Industrial Steels, Inc., Cambridge, Mass.; Metal Goods Corporation, St. Louis,



Kansas City, Houston; Seaboard Steel and Iron Corporation, Baltimore; J. M. Tull Metal and Supply Company, Inc., Atlanta; Union Iron and Steel Company, Inc., Cincinnati; Edgar T. Ward's Sons Company, Buffalo, Cleveland, Detroit, Milwaukee, Newark, Philadelphia, Pittsburgh; and Tanner and Company, Indianapolis.



Southern Contracts Pass Billion Dollar Mark

Ten
Month
Total
Tops All
Records

AN all-time record of more than a billion dollars in Southern construction was established during the past ten months, it is revealed by studies of CONSTRUCTION DAILY BULLETIN reports, as the level of contracts for this period exceeded not only that for any other ten months but also for any entire year in the history of the South.

October contracts totaling \$214,049,000 pushed the ten-month figure past all previous peaks to \$1,061,672,000, with funds continuing to pour from Federal coffers into the many industrial expansions and construction activities of an unprecedented program for fortifying America against the possibility of foreign invasion.

Total Government construction initiated so far this year in the sixteen Southern States is \$322,309,000, according to the CONSTRUCTION BULLETIN. Most of this is for the new army post and navy facilities being established along the South Atlantic and Gulf coasts and at many inland points as well. Housing, some of which is earmarked for employes of these establishments, adds \$78,784,000 to the figure.

Great military and naval air centers,

North American Aviation, Inc., Inglewood, Calif., aircraft manufacturing concern, is now pushing work on a \$7,000,000 factory at Henley Field, located near Grand Prairie, not far from Dallas, Texas. An artist's conception of how the plant will appear when completed is shown above. An article and other pictures appear on page 35.

Work is being rushed at Nashville, Tenn., on a \$5,000,000 building program to increase the floor space of the Stinson plant (below) recently taken over by Vultee Aircraft, Inc., for exclusive production of military planes, by approximately 520,000 square feet. Additional pictures and story will be found on page 31.

such as the one just placed in commission at Jacksonville, Fla., are being constructed and expanded to base the thousands of aircraft now in production and to train and shelter the many thousands of aviators required for their operation. Contractors at army camps everywhere are rushing work on quarters for the hundreds of thousands of citizens soon to be inducted into military service.

New munitions factories and big airplane plants figure prominently in the Southern construction picture. Additional facilities for producing the ingredients for explosives manufacture are also included. The latest of these is the tolul plant to be erected under a \$11,857,000 contract between the War Department and Humble Oil & Refining Co., Houston, Texas.

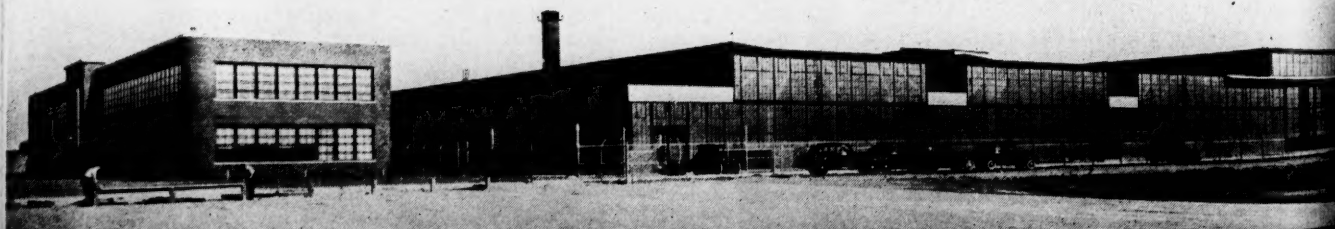
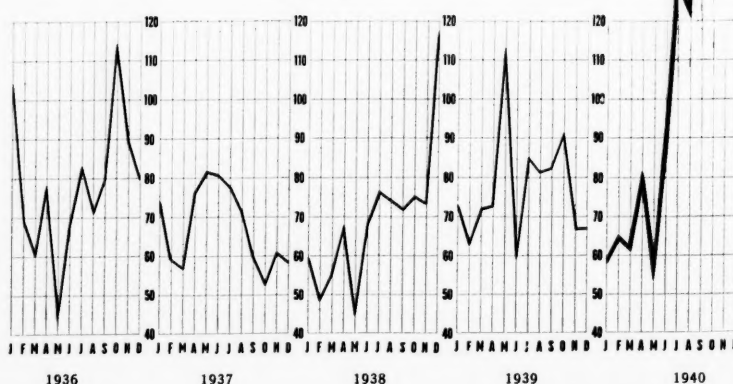
A \$15,000,000 plant for producing T. N. T., in which the tolulol is to be used, is to be constructed near Weldon Springs, Mo. Storage facilities for ammunition are to be built near Fort McClellan, Anniston, Ala., and a shell forging plant to

be operated at Gadsden, Ala. by Lansdowne Steel & Iron Co., was placed under contract. The War Department also contracted with Hercules Powder Co. for a \$10,000,000 increase in facilities, in addition to a \$25,000,000 project under way at Radford, Va.

The aluminum industry, which produces the metal so vital to aircraft production, and several aircraft firms in the South are expanding or erecting new plants. At Mobile, Ala., the Aluminum Ore Co., affiliate of the Aluminum Company of America, is raising its capacity 50 per cent. The Reynolds Metals Co., Inc., of Richmond, Va., is building

Southern Construction Trends

(millions of dollars)



Statistics of South's Construction

	October, 1940		Contracts Awarded First Ten Months 1940	Contracts Awarded First Ten Months 1939
PRIVATE CONSTRUCTION				
BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$1,422,000	\$2,303,000	\$16,938,000	\$13,736,000
Commercial (Stores, Restaurants, Filling Stations, Garages, etc.)	2,104,000	3,190,000	25,829,000	25,589,000
Residential (Apartments, Hotels, Dwellings)	6,645,000	7,922,000	82,026,000	80,572,000
Office	3,151,000	2,977,000	10,296,000	15,893,000
	\$13,322,000	\$16,392,000	\$135,089,000	\$135,790,000
INDUSTRIAL	\$56,720,000	\$78,012,000	\$254,392,000	\$132,716,000
PUBLIC CONSTRUCTION				
BUILDING				
City, County, State, Federal	\$110,819,000	\$57,284,000	\$322,309,000	\$103,725,000
Housing	6,486,000	48,035,000	78,784,000	61,668,000
Schools	2,176,000	6,239,000	22,707,000	57,835,000
	\$119,511,000	\$111,558,000	\$423,800,000	\$223,228,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$3,703,000	\$639,836,000	\$52,608,000	\$54,591,000
Federal, County, Municipal Electric ...	6,839,000	40,202,000	59,864,000	79,733,000
Sewers and Waterworks	1,216,000	2,581,000	9,392,000	24,835,000
	\$11,758,000	\$682,619,000	\$121,864,000	\$159,159,000
ROADS, STREETS AND BRIDGES	\$12,738,000	\$18,708,000	\$126,527,000	\$141,569,000
TOTAL	\$214,019,000	\$907,289,000	\$1,061,672,000	\$792,462,000

a big new plant a Sheffield, Ala., manufacturing operations being scheduled to start early next year.

Total expenditures of the Aluminum Company of America for expanding its facilities at various points throughout the country are placed at \$150,000,000. Part of this is for hydroelectric plants in North Carolina, including the Fontana development which will add 100,000 kilowatts to the company's system, and for new fabricating facilities at Alcoa, Tenn.

Florida, where several airplane fac-

tories have been established recently, is to get another and larger plant for this purpose. Intercontinent Aircraft Corp., a \$1,500,000 domestic corporation, is to erect a \$750,000 plant at Miami, Fla. Glenn L. Martin Co., Baltimore, Vultee Aircraft, Inc., Nashville, Curtiss-Wright, Corp., St. Louis, and North American Aviation, Inc., Dallas, are other aircraft manufacturers carrying out big Southern construction projects.

Two new paper mills appeared on the Southern horizon during the month. Allied Industries, Inc., of New York, announced preliminary surveys had been made of a Georgia site, and the Bagdad Lumber Co., of Bagdad, Fla., is reported to be interested in establishment of a plant. St. Marys Paper Corp., of St. Marys, Ga., recently awarded the contract for a large new plant, and Southland Paper Mills, Inc., of Lufkin, Texas, which was previously erroneously re-

(Continued on page 66)

Manufacturing operations were started recently at the \$3,000,000 plant of United States Tobacco Co., on Petersburg Pike, near Richmond, Va. The six-story main structure with its interesting architectural treatment is faced with brick and covers a 100 by 350-foot site. Schmidt, Garden & Erikson, of Chicago, were the architects. John Felmley Co., of Bloomington, Ill., were the general contractors.

**PREPARE
HERE, TOO!**



PREPAREDNESS DEMANDS DOOR EFFICIENCY

In planning to meet today's urgent need for peak efficiency at every point, don't overlook doorways. Keep traffic and production free from "bottlenecks" at doorways by installing Kinnear Rolling Doors. They assure foolproof efficiency—and more! They give you unbeatable economy of operation; save floor, wall and ceiling space for productive use; bring sharp reductions in maintenance and repair costs; and protect your plant with a rugged curtain of steel.

Kinnear Rolling Doors open straight upward, and coil compactly above the opening. They remain out of the way, safe from damage by wind or vehicles. Snow, ice and swollen ground never obstruct their smooth, easy operation. If you wish, they can be operated electrically, with any number of conveniently placed push-button controls. And their famous all-steel, interlocking-slat construction repels fire, defies weather, and keeps intruders and trouble-makers out!

Check the advantages of these efficient doors. Send for details today, and outline your requirements, if you wish—there's no obligation. The Kinnear Manufacturing Company, 1600-20 Fields Avenue, Columbus, O.

KINNEAR
ROLLING DOORS



New Industrial Plants and Expansions in the South During October, 1940

Contracts Awarded

Ala., Bessemer—Southern Bell Telephone & Telegraph Co.; exchange addition	
Ala., Birmingham—Birmingham Southern R. R.; freight house addition	
Ala., Birmingham—Southern Railway System; steel rail	
Ala., Fairfield—Tennessee Coal, Iron & R. R. Co.; bath house addition	
Ala., Gadsden—Rust Engineering Co.; munitions plant	6,000,000
Ala., Gadsden—War Department; shell forging plant	1,138,000
Ala., Mobile—Alabama Power Co.; steam plant	20,000
Ala., Mobile—Haase-Davis Packing Co.; plant	25,000
Ala., Sheffield—Reynolds Metals Co.; aluminum plant	23,500,000
Ark., Dermott—Peoples Lumber Company; lumber yard	
Fla., Auburndale—McDonald Corporation; canning plant	50,000
Fla., Miami—Intercontinent Aircraft Corp.; plant	750,000
Fla., Miami Beach—Abe Polick; laundry	100,000
Ga., Atlanta—Seaboard Air Line Railway; boiler house	28,000
Ga., Atlanta—Southeastern Greyhound Lines; garage	
Ga., Atlanta—West Brothers Sheet Metal Works; building	
Ga., Dalton—Cabin Crafts; chenille plant	
Ga., Griffin—Southern Bell Telephone & Telegraph Co.; main dialing office building	
Ga., Porterdale—Bibb Manufacturing Co.; mill addition	
Ga., Thomaston—Coca Cola Bottling Co.; addition	
Ky., Bowling Green—Derby Underwear Co.; factory	100,000
Md., Baltimore—Western Maryland Railway Co.; equipment	
Md., Relay—Calvert Distilling Co.; boiler house addition	
Md., Towson—Bendix Aviation Corp.; plant	
Miss., Ellisville—City; hosiery plant	41,699
Miss., Macon—Noxubee Refrigeration Association; cold storage plant	
Miss., Meridian—Flinthote Co., Inc.; wall board products plant	1,000,000
Miss., Natchez—Armstrong Tire & Rubber Co.; warehouse	250,000
Mo., St. Louis—Barry-Wehmiller Machinery Co.; factory addition	15,000
Mo., St. Louis—Brite Lighting, Inc.; addition	
Mo., St. Louis—Drug Package Co.; factory addition	
Mo., St. Louis—George Hart; factory addition	15,000
Mo., St. Louis—Maurice Realty & Investment Co.; factory addition	
North Carolina—Nantahala Power & Light Co.; turbine	200,000
N. C., Charlotte—Kraft Cheese Company; plant	
N. C., Elkin—Chatham Manufacturing Co.; wool carbonizing building	70,000
N. C., Gastonia—Arkray Mill for Textiles, Inc.; addition	
N. C., Newton—Burlington Mills; mill building	
N. C., Raleigh—Carolina Realty Company; bus terminal	100,000
N. C., Swepsonville—Virginia Mills; mill expansion	
Okla., Oklahoma City—Oklahoma Transportation Co.; bus station	50,000
S. C., Anderson—Pepsi-Cola Bottling Co.; plant	27,151
Tenn., Alcoa—Aluminum Company of America; expansion equipment	
Tenn., Memphis—Forest Hill Dairy; plant addition	40,000
Texas—Magnolia Pipe Line Co.; pipe line	
Tex., Aransas Pass—United Carbon Co.; carbon black plant	
Tex., Baytown—Humble Oil & Refining Co.; building	
Tex., Baytown—War Department; toluol plant	11,857,000
Tex., Beaumont—Beaumont City Lines; terminal & office building	43,000
Tex., Corpus Christi—Southwestern Bell Telephone Co.; garage	
Tex., Dallas—North American Aviation, Inc.; factory	500,000
Tex., Edinburg—Great Southern Fruit Company; packing plant	
Tex., Falfurrias—Laforgia Corporation; recycling plant	2,000,000
Tex., Fort Worth—Southwest Corrugated Box Co.; box plant	100,000
Tex., Houston—Cameron Iron Works; factory addition	27,000
Tex., Houston—Houston Natural Gas Co.; expansion	
Tex., Houston—Pan American Pipe Line Co.; pipe line	
Tex., Lufkin—Southland Paper Mills, Inc.; newsprint paper plant	1,800,000
Tex., Mission—Willard Ferguson; packing plant	
Tex., Orange—Jackson Brothers Motor Co.; garage	25,000
Tex., Port Arthur—Bayonne Steel Barrel Co.; plant & dock	
Tex., San Antonio—Jacob Brandt; poultry plant	
Tex., San Antonio—Magnolia Petroleum Co.; remodeling	
Tex., Seguin—United Aero Corporation; hangars, etc.	
Tex., Sinton—Central Power & Light Co.; cold storage locker plant	
Tex., Wichita Falls—Coca Cola Bottling Co.; plant	
Va., Glasgow—Blue Ridge Company; rug plant addition	
Va., Lynchburg—Lynchburg Foundry Co.; addition	19,000
Va., Lynchburg—Mead Corporation; plant addition	
Va., Martinsville—E. I. DuPont de Nemours & Co., Inc.; nylon plant	11,000,000
Va., Radford—War Department; smokeless powder plant	10,000,000
W. Va., Charleston—West Virginia Traction & Equipment Co.; factory & office	50,000
W. Va., Huntington—International Nickel Co.; merchant mill extension	22,000
South—Baltimore & Ohio R. R.; equipment	2,500,000
South—Chesapeake & Ohio R. R.; equipment	2,250,000
South—Southern Pacific Railroad; rails & accessories	700,000

Contracts Proposed

Ala., Chickasaw—Gulf Shipbuilding Corp.; rehabilitation program	2,500,000
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Ala., Florence—Coca-Cola Bottling Co.; plant	
Ala., Gadsden—Goodyear Tire & Rubber Co.; plant expansion	
Ala., Gadsden—Landsdowne Steel & Iron Co.; shell forging plant	
Ala., Lanette—West Point Manufacturing Co.; office building	30,000
Ark., Batesville—Arkansas Manganese Mining Co.; plant	500,000
Ark., Little Rock—Southwest Compressed Tin Co.; plant	30,000
Ark., West Memphis—J. H. Turner & Ray Dobbins; ice plant	
Florida—Florida East Coast Railway (receivers); equipment	
Fla., Bagdad—Bagdad Lumber Co.; pulp & paper mill	
Fla., Miami Beach—Florida Power & Light Co.; generating plant	2,500,000
Ga., Atlanta—Akers Motor Lines, Inc.; freight depot	
Ga., Atlanta—Scripto Manufacturing Co.; building	
Ga., Atlanta—Westinghouse Electric & Manufacturing Co.; building	500,000
Ga., Columbus—Teche-Greyhound Lines; bus terminal	40,000
Ga., Hapeville—Tyler & Company; printing plant	75,000
Ga., LaGrange—Callaway Mills; auditorium-gymnasium	153,422
Ga., Mayday (mail Howell)—Allied Industries, Inc.; pulp mill	
La., New Orleans—G. A. Guerrero, Consul of Bolivia; tin smelting plant	
Md., Baltimore—Baltimore & Ohio R. R.; equipment	5,069,250
Md., Baltimore—Baltimore Transit Company; street cars	1,400,000
Md., Baltimore—Consolidated Gas, Electric Light & Power Co.; alterations	
Md., Baltimore—Crown Cork & Seal Co.; building	
Md., Baltimore—Hinde Dauch Paper Co.; plant addition	10,000
Md., Baltimore—Texas Company; steel tanks	29,000
Md., Cumberland—Baltimore & Ohio R. R.; engine house alterations & additions	
Miss., Natchez—Blue Bell-Globe Manufacturing Co.; clothing plant	
Mo., Kansas City—W. S. Dickey Clay Manufacturing Co.; clay plant	
Mo., Kansas City—War Department; arms ammunition plant	15,000,000
Mo., St. Louis—Continental Can Co., Inc.; plant	1,000,000
Mo., St. Louis—Curtiss-Wright Corp.; plant addition	8,000,000
Mo., St. Louis—John C. Kupferle Foundry Co.; addition & alterations	
Mo., St. Louis—Missouri Pacific R. R.; rails & accessories	2,263,030
Mo., St. Louis—Ritz Beverage Co.; plant	
Mo., St. Louis—Southwestern Bell Telephone Co.; office alterations & additions	
Mo., St. Louis—Thermaduke Corporation; factory	15,000,000
Mo., Weldon Springs—War Department; explosive plant	
N. C., Charlotte—Lee A. Folger; building	200,000
N. C., Charlotte—H. M. Wade; sales & service building	75,000
N. C., Greensboro—Atlantic Greyhound Lines; bus terminal	200,000
N. C., Marion—Paper Box Company; addition	10,000
N. C., Raleigh—Carolina Coach Co.; bus terminal	80,000
N. C., Winston-Salem—Atlantic Greyhound Corp.; bus terminal	
Tenn., Bristol—East Tennessee Light & Power Co.; power house	35,000
Tenn., Dyer—Brown Shoe Company; factory addition	
Tenn., Manchester—Southern Bell Telephone & Telegraph Co.; dial system	
Texas—Pepsi-Cola Company; expansion program	2,000,000
Texas—Southwestern Bell Telephone Co.; carrier repeater buildings	
Texas—Standard Oil Co. of Texas; recycling & gasoline plant	
Tex., Beaumont—Southwestern Bell Telephone Co.; building	1,000,000
Tex., Borger—Phillips Petroleum Co.; experimental plant	100,000
Tex., Dallas—North American Aviation, Inc.; plant	6,500,000
Tex., Galveston—Texas Cities Gas Company; expansion & improvement program	50,000
Tex., Houston—Deere & Co.; plow plant	
Tex., Houston—Eastern States Petroleum Co., Inc.; tank farm	26,000
Tex., Houston—Houston Linen Service Co.; plant addition	85,000
Tex., Houston—Missouri Bridge & Iron Co.; steel plant	
Tex., Houston—Republic Steel Corp.; plant	
Tex., McAllen—Ontario Oil Co.; pipe line	
Tex., Port Isabel—Castal Refinery Co.; refinery addition	
Tex., Rockport—A. M. Westergard (Arch.); shipyard	200,000
Tex., San Antonio—Lone Star Brewing Co.; plant expansion	
Tex., Taylor—Central Freight Lines; freight depot	
Virginia—National Carbide Corp.; plant	
Va., Harrisonburg—Harrisonburg Daily News-Record; building	
Va., Newport News—Chesapeake & Potomac Telephone Co.; building	1,000,000
Va., Newport News—Newport News Shipbuilding & Dry Dock Co.; rehabilitation program	14,000,000
Va., Norfolk—L. T. Walker, Jr.; bus station	
Va., Richmond—Phillip Morris & Co.; plant	
Va., Roanoke—Norfolk & Western Rwy. Co.; yard improvements & additions	4,700,000
Va., Star Tannery—American Alloys Co.; manganese plant	
W. Va., Morgantown—E. I. DuPont de Nemours & Co., Inc.; synthetic nitrogen plant	
South—Aluminum Company of America; expansion	150,000,000

"I recollect when ...



the Long Distance telephone went no further'n 300 or 400 miles. Took almighty long to get a call through. You had to yell like a Comanche to be heard. Then, dag nab it, you usually wound up with a headache."

• • •

Shucks, Grandpa, that's all changed—and you know it! What about that weekly call last Sunday to your grandson? Took Long Distance around a minute and a half to

bring him on the wire 500 miles away. You spoke quietly . . . heard perfectly . . . exchanged a couple of hundred words in three thrilling minutes. And the bill—well—it was so small you yourself "allowed as how" it was worth it, ten times over.

That's the spirit, Grandpa! Keep enjoying yourself. Keep young in heart. And keep Long Distance at your elbow to make sure of it.

BARGAIN TIME FOR LONG DISTANCE
every evening after seven and all day Sunday



New Ways of Doing Things

Unbreakable Thermal Bottle Oiler

Designed to replace ordinary oil cups, a new, visible, unbreakable bottle oiler has been introduced by the TRICO FUSE COMPANY, Milwaukee, Wis. The oiler



TRICO Unbreakable Thermal Oiler.

automatically lubricates solid, wick, or waste-packed bearings. On the slightest temperature rise, it discharges a few drops of oil, and as soon as the bearing receives the oil, it cools and the feeding stops automatically. The operation repeating itself constantly and positively without attention. An unique feature is the adjustable feed. Through a simple turn of the Thermo-Dome a port hole opens or closes, regulating the flow of oil. The oiler is made in one, two and four ounce capacities.

Low-Priced Towmotor Lift Truck

A new low-priced lift truck developed especially for handling 1000 to 3000-pound loads in plants, mills, docks, warehouses and terminals, is announced by Towmotor Company, Cleveland, Ohio, manufacturers of industrial lift trucks and tractors. Known as the LT-40, the new unit is built on a 40-inch wheelbase, with turning radius of 68 feet. It weighs 3000 to 4000 pounds and has an overall length (without forks) 70 inches, and an overall width of 35 inches. With interchangeable attachments—forks, rams, scoops, flat plates and special loading devices—the unit is suitable for handling a wide variety of materials. It is powered by a 22-horsepower four cylinder gas engine, equipped with digressor and governor, and will travel at speeds from 1 to 10 miles per hour.

Autocall Code Sending Device

Adding a new and inexpensive "code sending" station to its line, the Autocall Company, Shelby, Ohio, announces the "Pager" unit which transmits codes to locate from one to twenty individuals. Numbers are assigned to persons wanted most frequently. The "Pager" is then dialed to the party wanted, and this transmits an audible code, simultaneously, to all departments on the premises. The code is sounded by scientifically selected and located signals which may be musical chimes, mellow toned bells or sharp and insistent gongs. The "Pager" is one of three types of code sending devices for Autocall manufacturers. Others are available in capacities from ten to ninety codes.

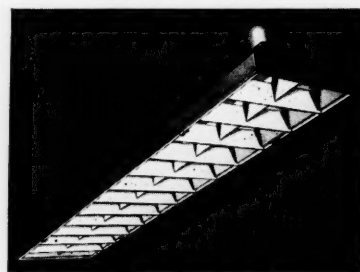
Improved Asphalt Tile

Presenting a smoother and more attractive surface and claimed to possess specific advantages for use both as an in-

dustrial flooring and for protection of roof areas used for recreational or other purposes, an improved asphalt tile has been developed in the laboratories of The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio. The new product, which is marketed under the name of Elastite Asphalt Tile, is a compound of asphalt and mineral filler, reinforced with asbestos fibres, densely compressed and die cut to size. It is manufactured in standard black and standard red, in 1/2-inch thickness, and in sizes 12 inches by 12 inches and 12 inches by 24 inches.

Lamp-Shielding Louver for Benjamin Fluorescent Fixtures

While the shielding angle provided by the reflector skirt of Benjamin RLM "Stream-Liter" fluorescent lamp fixtures is claimed to be satisfactory for most industrial plant applications, additional shielding of the long lamps used in these fixtures is often desirable to achieve greater eye comfort and freedom from glare in drafting rooms, laboratories,



Benjamin Lamp-Shielding Louver

offices and many commercial locations. This is provided, it is declared, by the new Benjamin Louvers, which, as an accessory, attach instantly and conveniently to any Benjamin "Stream-Liter" and increase the shielding angle to approximately 23 degrees in all directions. Both the Benjamin Twin-Lamp, RLM "Stream-Liter" and the Triple-Lamp "Stream-Liter" can be equipped with the Louvers. The Benjamin Louvers, as are the lamps, are manufactured by the Benjamin Electric Manufacturing Company of Des Plaines, Ill.

New Bronze Globe Valve

Designed for throttling services on high temperature and high pressure steam lines, a new bronze globe valve has been announced by the Reading-Pratt & Cady Division of the American Chain and Cable Company, Inc., Reading, Pa. The valve has a full-plug type seat and disc, and is also suitable for use on high pressure lines carrying boiler scales and other gritty substances which quickly wear ordinary seating materials. The body is of a special hard bronze, disc and seat of heat-treated Stainless Steel, 500 Brinell Hardness, and the stem is of high strength wear-resisting bronze.

"Caterpillar" Adds to Line of Diesel Electric Sets

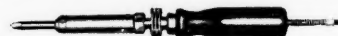
To round out its popular line of Diesel Electric Sets, Caterpillar Tractor Company, Peoria, Ill., announces two new models—the 88-41 and the 77-34—which give the company a complete range in electric set sizes from 15 to 85 kilowatts. Both the new units are powered by four-cylinder Diesel engines, the 88-41 developing 41 KW at 900 RPM, when equipped with radiator fan. Without fan, the rating is 44 kilowatts. Model 77-34 develops 34 KW at 900 RPM when equipped with fan, and is rated at 36 kilowatts without fan. Both ratings are for the polyphase, 60-cycle set. Single phase ratings are slightly lower. The sets are completely self-controlled, easy to install, and require no gadgets other than a circuit breaker. Inbuilt regulation enables them to pick up relatively large motor loads with a minimum of light flicker and voltage drop. There are only three operating adjustments on the engines, none of which involves the fuel system. Generators are of the direct-connected, rotating field type, available as 3-phase or single phase, 60-cycle or 50-cycle, and with a wide variety of voltages. Maintenance problems have been simplified by having the entire unit serviced by "Caterpillar" distributors.

Baker Hy-Lift Truck

Latest addition to the line of industrial trucks manufactured by the Baker Industrial Truck Division of The Baker-Raulang Company, Cleveland, Ohio, is the company's new Type H-2 Series F Hy-Lift Truck, available in 4000-pound capacity. This model has been designed for operation in narrow aisles and congested areas. It incorporates the following important features: efficient hydraulic lift; light weight without sacrifice of strength and ruggedness; shorter overall length; accessibility, controls and hoists in convenient control panel; absolute control of hoisting and lowering speeds. The standard simple lift is 60 inches, and the standard telescoping lift is 119 inches.

Drake Industrial Soldering Iron

Featuring an element which can be removed by simply loosening the lock nut, a new industrial soldering iron has been introduced by Drake Electric Works, Inc., of Chicago, Ill. The element and handle assembly are connected electrically by



Improved Industrial Soldering Iron

means of spring contacts. The element can be replaced in 30 seconds. Elements and tips are interchangeable, the former being wound with Driver Harris Nichrome 5 on soft amber mica. Irons are chrome plated and come complete with 6 feet of Belden heater cord, soft rubber plug and large stand.

WHAT COUNTS IS THE VALUE THAT SHOWS UP ON THE JOB

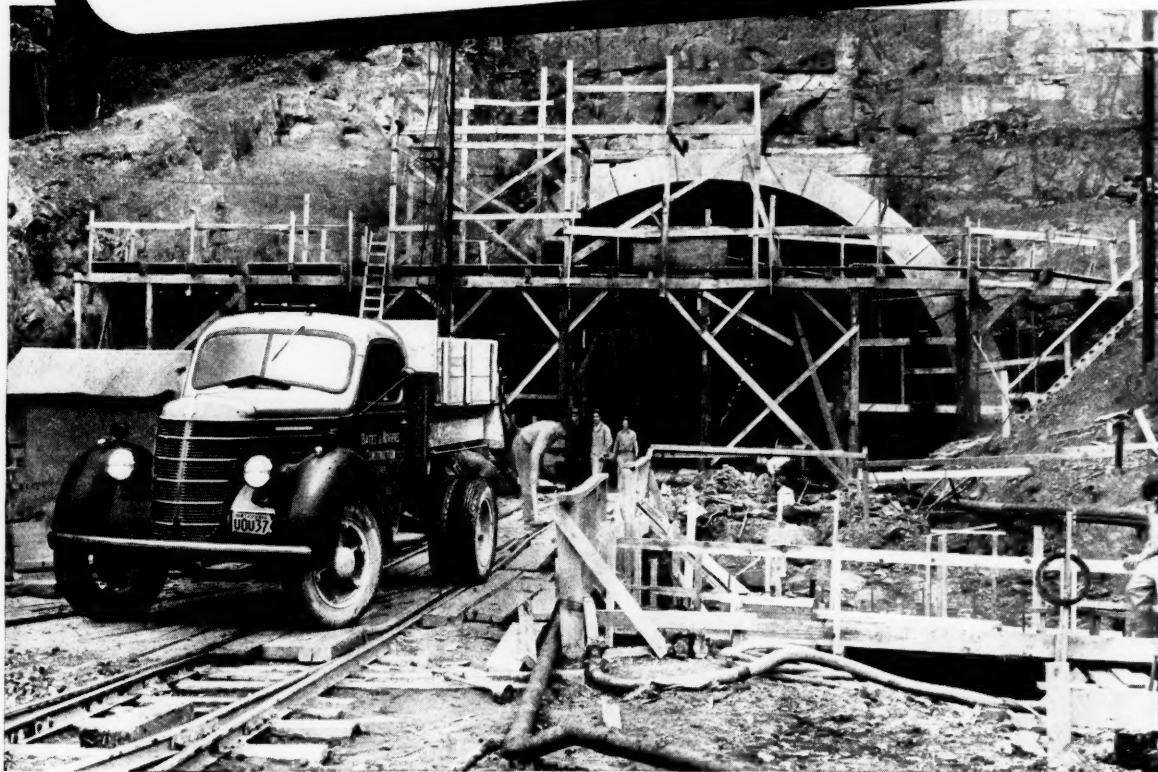
THERE'S a great deal more to International Trucks than meets the eye when you see them rolling along with their loads or standing on the showroom floor.

We mean the things you'll find out only after you put Internationals on the job... things like their *lasting economy, dependability, trouble-free performance, stamina, and long life.* You can't put your finger on qualities like these *but owners know they're there.* That's why men keep coming back to International when they need new trucks!

International reputation is built as much

on these "hidden values" that come out day after day and year after year as on the sound engineering, quality construction, and all-around mechanical excellence that go into these trucks. Ask any International owner... and then see for yourself by putting the right Internationals to work on your own loads. Sizes range from Half-Ton units to powerful Six-Wheelers. See the nearby International dealer or Company branch for complete information.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago, Illinois



Many International Trucks, from light-duty models to powerful six-wheelers, have been employed by various contractors on the Pennsylvania Turnpike. This shows one of the Internationals on the job, working for Bates & Rogers Construction Corporation.

INTERNATIONAL TRUCKS

NOVEMBER NINETEEN FORTY



**—and QUAKER STATE finds
all 3 STERLING PUMPS
are TROUBLE FREE!**

Back in the spring of 1933 we put in the first Sterling Deep Well Turbine for the Quaker State Oil Refining Corporation plant near Bradford, Pa. It was a 10" 4 stage unit employing 25 H.P. motor. Later a small unit employing a 3 H.P. motor was installed.

So reliable, so low in maintenance costs and so trouble-free were these two turbine pumps that in November, 1937, Quaker State ordered a third Sterling—a 10" 7 stage pump with 75 H.P. motor. And again Sterling's free floating drive shaft and precision assembly have given Quaker State savings plus trouble-free operation.

If you want to make savings in handling water, or if you have water handling problems, we can help you. Write us about your problems—today.

Few Sterling pump owners need service—but if you need it, Sterling gives service from coast to coast.



FINANCE » » » and « « « INDUSTRY

What The Consumer Pays

The Northwestern National Life Insurance Co. states, as a result of a study directed toward the taxes "contained in retail prices," consumers must pay nearly two-thirds of the nation's total estimated tax bill of \$15,000,000,000. This total covers Federal, state and local tax collections for the calendar year of 1940. As a result of the study made the opinion is expressed that \$5,382,000,000 directly paid under income taxes, estate and inheritance taxes, employees' social security contributions, etc., should have little effect on retail prices.

The remainder, consisting of taxes which are part of the cost of doing business, would necessarily be included in selling prices, like any other costs, and therefore must ultimately be paid by the consumer.

The estimate of what the consumer must pay does not include general sales taxes which will total over \$500,000,000 in 1940. It is pointed out while these taxes also come from consumers' pockets, the consumer pays them directly and consciously.

Real estate taxes to a total of over \$1,000,000,000 are not included as these are paid directly by owner-occupied homes. It is not overlooked, however, that these two substantial items add another \$1,500,000,000 and more to the consumers' share of the national tax bill.

Expansion of Aircraft Building

It is believed in Washington that Congress will be asked to appropriate \$2,000,000,000 this month for the building of new aircraft of the bomber type. The Defense Commission is said to have laid plans for the facilities that will be necessary to carry out the work. There will necessarily be a greatly enlarged program of production gotten under way to produce two-engine and four-engine bombers that may be authorized to the number of 12,000 to 15,000 for the Army and Navy. This would be in addition to the planes now under contract.

It is of interest in this connection to take note of the rumors in Washington that Great Britain may build a chain of aircraft factories in this country. The extent of such a program is not known, but British needs are definite and it would not be surprising if the construction of such plants would be undertaken before long.

U. S. Steel Earnings

At the recent directors meeting of the U. S. Steel Corporation, it was disclosed in a report for nine months' operations, which was presented, that tax payments in the nine months ending September 30 amounted to \$62,746,071, while the net profits after all deductions, including taxes, were \$69,418,070.

Of the net profits, \$45,024,513 was distributed in dividends to stockholders and \$24,393,557 carried to surplus account.

In the third quarter of 1940 the Corporation employed an average of 261,197 workers, and it was estimated that its tax bill for the quarter, including Federal, state and local taxes, amounted to \$30,610,901. The tax represented more than 48 per cent of total earnings of the business during the period.

ACL R. R. Earnings

The Atlantic Coast Line Railroad had a net operating income in September, as recently reported, of \$425,243, contrasted with a net operating income of \$156,628 in September 1939.

(Continued on page 52)

INDUSTRIAL DEPARTMENT * SEABOARD AIR LINE RAILWAY

SHORT CUT^{to} FACTS

Everyone knows the South possesses outstanding advantages for manufacturing. However, not all communities in the South offer equal advantages to industry. In the six Southeastern States served by the Seaboard, as elsewhere, a plant location is good or bad depending upon whether it meets the requirements of the enterprise.

WE KNOW THE GOOD PLANT LOCATIONS

For many years we have made a careful study of this territory, and accumulated a great amount of information on plant sites, natural resources and manufacturing conditions. To responsible clients we offer an experienced and competent plant location service without cost or obligation.

Ask us for detailed studies of suitable locations for your business in the Seaboard "Profit Zone".
Address Warren T. White, General Industrial Agent, Seaboard Air Line Railway, Norfolk, Virginia.

FREE!

INDUSTRIAL DEPARTMENT SEABOARD AIR LINE RAILWAY

SITES
LABOR
TRANSPORTATION
RAW MATERIALS
POWER
LIVING CONDITIONS
CLIMATE
TAXES

Locate your industry in **TALLAPOOSA, GEORGIA** **WHY?**

No labor troubles. Adequate power, water and transportation facilities. Located between Atlanta and Birmingham on trunk line of Southern Railway and Bankhead National Highway. Churches and schools unexcelled. Best climate in the south. Population 2500. Tax exemptions on new industries. Local cooperation good. Splendid factory sites and some buildings available. For further information address

J. T. Drew, City Clerk, Tallapoosa, Georgia

We have helped

many businesses that have brought
us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, President
BALTIMORE, MARYLAND

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

FOR SALE **at Public Auction**

**Stock Control (65%) of Georgia
Marble Company, World's Second
Largest, to be sold November 15**

By order of the Hon. J. H. Hawkins, Judge of the Blue Ridge Circuit of Georgia, 13,118½ shares of the 20,000 shares of common stock of the Georgia Marble Company will be sold free and clear of all liens and claims, at public auction (subject to confirmation by the Court) at Jasper, Georgia, on November 15, 1940, starting at 11:00 A.M.

The Georgia Marble Company is not financially interested in this sale and is not in financial difficulties. This sale is for the purpose of clearing the personal holdings of the estate of Sam Tate, deceased.

The stock has a par value of \$100.00 per share and a book value (last audit) of \$160.00 per share.

The company has 1500 active customers in a trade area of 38 states and foreign countries, covering the monumental and building trades. There are no long time contracts or commitments.

Prospective purchasers may, upon application to the receivers, inspect the properties and records of the company and obtain any desired information as to the terms of sale.

Communicate with

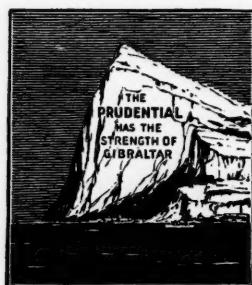
L. M. BLAIR or ERNEST HUDSON
Receivers
MARIETTA, GEORGIA

Coordination

Your personal life insurance
should tie in with your financial
affairs as a whole

For sound suggestions without
obligation ask

The Prudential Man



The Prudential
Insurance Company of America

Home Office, NEWARK, N. J.

Finance and Industry

ACL R. R. Earnings

(Continued from page 50)

Gross figures for the respective months were \$3,662,102, contrasted with \$3,197,544.

The Association of American Railroads reports that Class 1 railroads of the United States had net operating income for the first nine months of this year of \$440,000,000 compared with \$355,000,000 in the first nine months of 1939.

The rate of return on the property investment in the period named for 1940 was 2.36 per cent compared with 1.91 per cent in a similar period of the year before.

Buying Machine Tools

Machine tool production for 1940 promises to pass all records. In an address last month before the National Machine Tool Builders' Association, Mr. Tell Berna, General Manager of the Association, predicted that in 1940 the output will be two and a half times larger than in 1929. The expectancy of gross business of \$450,000,000 was cited.

Machine tool buyers were urged not to demand earliest possible delivery on orders.

Speaking of taxes, E. I. du Pont de Nemours & Co.'s statement contains a provision for taxes for the first nine months of 1940 of over \$30,400,000 for Federal income taxes, compared with \$9,340,000 for the same period of last year.

While orders are increasing and profits generally in the majority of industrial plants may be above those of a year ago, it is true that increasing taxes, Federal, State and local, cause business to be fully aware of the burden that is being borne and is likely to increase as the defense program expands. Taxes made necessary by the huge debt incurred, which in many instances represents wasted money, is what hurts. Producers of the country to a man recognize and are in favor of complete defense and they are willing to pay their full share of the cost, but as they contemplate the extravagance that has gone on in government in recent years, together with laws that have been adopted to hamper business, they recognize how little has been the encouragement to enlarged operations and a decent profit.

Business Increases

While business is moving forward at an accelerated pace in quarters benefited by national defense contracts, other producers are finding new orders increasing in consumer markets and building supply lines. The Commerce Department recently reported that new orders placed with manufacturers reached in September a new high point for 1940.

Government contracts applying to defense needs are given priority with speed as the watchword, and in some directions this is causing noticeable delay in filling orders from regular customers. Until facilities are increased some bottlenecks are bound to occur, although it is recognized that speed in defense is of first importance.

Union Solicitation on Company Time

A recent ruling of the National Labor Relations Board, referred to by the Journal of Commerce, is of interest to employers. The Board ordered the reinstatement of workers in three companies who had been discharged for union solicitation during working hours, and held that employees may engage in union solicitation on company time.

The newspaper comments: "If upheld in the courts, the rulings may provide the most important restrictions on plant discipline yet promulgated by the Board."

missing link



A brilliantly conceived advertising and selling operation may be lacking in some vital particular and produce only indifferent results.

\$\$\$ Study your program and ask yourself whether there is an important "missing link." It will pay you to find it.

\$\$\$ If your advertising is aimed at high executives, you may be

using publications which they read at home. But do you *merchandise* that advertising by taking space in the medium which they read in their offices—your *point of sale*?

\$\$\$ Much of the selling punch in your copy can be lost in the carry-over from home to office.

\$\$\$ The one and only national publication for management executives that *prevents this loss* is The Wall Street Journal. 86 per cent of its subscribers read it in their offices at their desks.

\$\$\$ It gives you, per advertising dollar, more readers who are active management-executives of industrial corporations with assets of over \$1,000,000 than any other publication.

\$\$\$ Make your campaign more productive by completing it with The Wall Street Journal.

SELLS MANAGEMENT EXECUTIVES

**WALL
STREET
JOURNAL**

at point of sale

INDUSTRIAL NEWS

Thirteenth National Asphalt Conference

The 13th National Asphalt Conference in Dallas, Texas, December 9 to 14, will complete the cycle of oil and related conventions held in that key city of the industry. Meeting thus in the heart of the petroleum region, in a city which ranks as a national oil center, it is expected that asphalt, a derivative and product of petroleum, will assume its rightful importance as a major factor in the oil industry. Beginning with the national meeting of the American Petroleum Institute in 1934, and continuing with national and regional conventions, every organization of the oil, gas and related fields will have held its annual meeting in Dallas when the Asphalt Conference convenes in December. A month preceding, Dallas will be host to the Independent Petroleum Association of America. Captain J. P. Lucey is the General Chairman of the Asphalt Conference.

Bastian-Blessing's Southern Distributors Prepare for Business Boom

In anticipation of an unusually heavy demand for soda fountains, counter ice cream freezers and kindred equipment manufactured by The Bastian-Blessing Company, Chicago, Ill., three Southern distributors have stocked attractive displays of these products. Grant E. Key, Inc., 605 Fifth Street, Lynchburg, Va., has filled a showroom with new fountain and luncheonette equipment for the convenience of buyers in Virginia and the Carolinas; T. I. Hylant, who has distributed The Bastian-Blessing line for several years, has opened a new showroom at 714 North Boulevard, Tampa, Fla., displaying soda fountains, carbonators and ice cream cabinets, and The Helburn Company, 412 Montgomery Street, Montgomery, Ala., in preparation for an increased demand, has provided an ample supply of soda fountains and ice cream cabinets for quick delivery.

Norton Company Transfers

Making several transfers in the Sales Department of its Abrasive Division, Norton Company, Worcester, Mass., announces the appointment of C. Milton Ekberg of the Sales Engineering Department, Worcester, as field Engineer in the Chicago district, and William A. Russell as Field Engineer in the Pittsburgh territory. Alden P. Johnson, also a member of the Sales Engineering Department, has been transferred to South Bend, Ind., as a salesman assisting J. B. Eckstedt, and J. L. deVou, who has been engaged in field engineering work in the Chicago and Cleveland districts, has been appointed salesman with headquarters in Toledo, Ohio, assisting R. H. Cannon.

Columbia Alkali Opens Another Office for Southeast

Announcing the establishment of another chemical sales office in the Southeast in charge of J. R. Simpson of Durham, N. C., W. I. Galliher, director of sales of the Columbia Alkali Corporation, a division of the Pittsburgh Plate Glass Company of Pittsburgh, Pa., states that after February 1, 1941, the office will be located at Charlotte, N. C. Mr. Simpson, former director of the Duke University Apartments Office, was graduated from Duke University in 1924. Since then he has been engaged in educational affairs in the North Carolina Public School Administration and Duke University.

Northern Equipment Company Appoints Charlotte Representative

The Northern Equipment Company of Erie, Pa., manufacturer of the COPES system of boiler feed control, announces the appointment of Neil H. Brown, 1117 Liberty Life Building and 112 South Tryon Street, Charlotte, N. C., as district representative for COPES feed water regulators, differential valves, pump governors and allied equipment.

St. Louis-San Francisco Appointments

Appointments by the St. Louis-San Francisco Railway, effective October 1, have been announced as follows by J. R. Coulter, General Traffic Manager; J. E. Payne, Assistant Freight Traffic Manager; S. C. Inkley, General Freight Agent; A. L. Kreamehmeyer, assistant to General Traffic Manager; M. L. Austin, Industrial Commissioner; C. A. Redden, Special Representative; M. L. Lallinger, Assistant General Freight Agent; L. R. Hall, Assistant General Freight Agent; W. F. Strain, Office Manager all in St. Louis; W. H. Crow, Assistant Traffic Manager, Pensacola, Fla., and I. R. Garrettson, Committee Representative (Western Trunk Line), Chicago.

Graf Made Assistant Manager of Sales by Roebbling

Earl N. Graf, formerly manager of the Pittsburgh branch of John A. Roebbling's Sons Company, Trenton, N. J., has been appointed Assistant Manager of Sales, Wire Rope Division, with offices at Trenton. Born in Pittsburgh in 1893, Mr. Graf gained his first business experience with the Carnegie Steel Corporation, after 3-years' study of metallurgy and chemistry at the Carnegie Institute of Technology. He later joined Midvale Cambria Steel Corporation (now Bethlehem Steel Company) in general sales work, and in 1918 opened a branch in Philadelphia for the Beaver Refining Company. His first association with Roebbling was in 1919.

Sterling Pump Corporation Acquires Roots-Connersville Turbine Pump Division

For many years a leading manufacturer of deep well turbine pumps, vertical centrifugal pumps for sewage and industrial purposes, and a complete line of hydro-jet pumps, the Sterling Pump Corporation, Hamilton, Ohio, has acquired the Turbine Pump Division of the Roots-Connersville Blower Corporation of Connersville, Ind. According to President Henry J. McKenzie of the Sterling Pump Corporation, the acquisition of the Roots-Connersville line places Sterling in a strong position for furnishing any type of pumping equipment.

The Point is EXPERIENCE

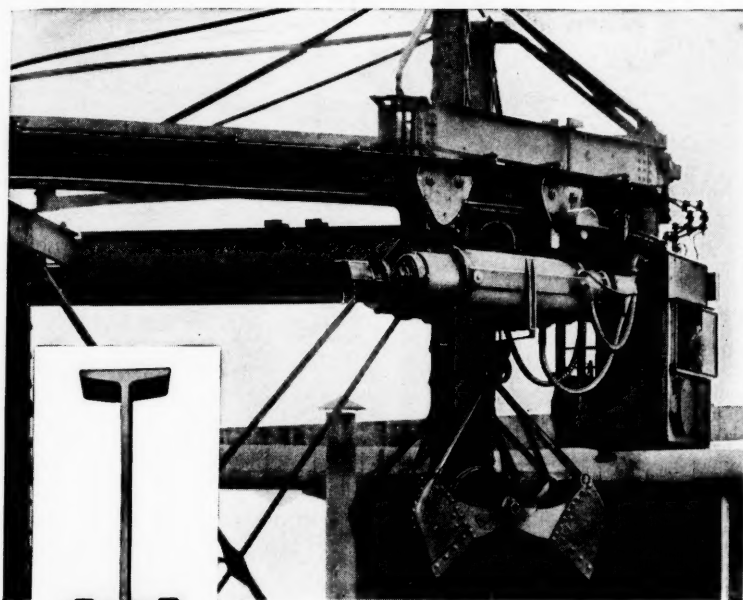
A HUNTING dog develops skill from careful training and plenty of experience. He learns his business in the field!

An efficient freight transportation service is likewise the product of experience. Precision Transportation places at your service the experience of skilled railroad personnel, whose training was acquired the hard way—"in the field." Backing this strong point, the Norfolk and Western Railway's smoothly coordinated, well-equipped transportation system further assures shippers and receivers that every kind of shipment moves safely and arrives on time when routed over the N. & W.

Specify Precision Transportation for dependable freight service. Prove for yourself the advantages of experience in the satisfactory movement of freight by rail.

Norfolk and Western Railway
PRECISION TRANSPORTATION





Shepard Track consisting of two special analysis T-rails clamped to the bottom flange of a standard I-beam insures a smooth, hard, long-wearing track for monorail hoists.



SHEPARD NILES
CRANE & HOIST CORP.



242 SCHUYLER AVENUE . . . MONTAUR FALLS, N. Y.

AERIAL RAILWAY OF INDUSTRY

• One Shepard Niles electric monorail hoist gives "express service", indoors or out to any point in the plant or yard carrying loads of every description. Furnished with single or double hooks in capacities from $\frac{1}{8}$ to 10 tons.

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INDUSTRIAL LIGHTING—

Catalog—"Light Where You Want It—Plus Protection," 4 pages, featuring the universal adaptation of Marvel Shields to industrial operations and illustrating installations on stationary grinders, disc sanders, surface grinders, band filers, shapers, metal band saws, milling machines, universal tool and cutter grinders, mortising saws, lathes, etc. **The Boyer Campbell Company, Detroit, Mich.**

INDUSTRIAL PUMPS—

Bulletin No. 940—24 pages, illustrating and describing Amsco-Nagle industrial pumps "for pumping everything but clear inactive liquids," including the recently developed Amsco line of vertical and horizontal pumps; helpful pump data is also presented. **American Manganese Steel Division of the American Brake Shoe and Foundry Company, Chicago Heights, Ill.**

FLUID DRIVE FOR AIR COMPRESSORS—

Booklet—12 pages, announcing the Davey Air Aristocrat 105, the first air compressor, it is claimed, to feature fluid drive, which makes possible entirely automatic compressor operation. **Davey Compressor Company, Kent, Ohio.**

BLUEPRINT READING—

Book—"Simple Blueprint Reading With Special Reference to Welding," priced at 50 cents in the United States and 75 cents elsewhere; may be ordered through any recognized book dealer, or from any dealer or representative of—**The Lincoln Electric Company, Cleveland, Ohio.**

HANDBOOK FOR ENGINEERS—

Book—useful and timely publication for engineers, covering various piston ring problems encountered in the operation of internal combustion engines, steam engines, compressors and pumps, together with recommendations for piston ring applications designed to overcome various operating difficulties; fully illustrated and contains important engineering data and practical information, including tables and reference data, free to engineers and operators; prepared by **Engineering Department, Double Seal Ring Company, Fort Worth, Tex.**

GOODRICH V-BELT DATA BOOK—

Book—170 pages, "V-Belt Data Book," presenting alphabetical listings of belt requirements for electric refrigerators, washing machines, water pumps, beer pumps, stokers and oil burners, gasoline pumps, wood-working machines, air compressors, power lawn mowers, buffing machines, floor sanding machines, garage and shop equipment, milking machines and slicing machines; listings cover 118 pages and in addition 24 pages are devoted to commercial group listings of belt sizes; 8 pages to numerical list of belt dimensions, both for V and flat belts, and 13 pages to conversion listings. **The B. F. Goodrich Company, Akron, Ohio.**

GOVERNOR-CONTROLLED MOTORS—

Leaflet P-8498—describing universal governor-controlled motors, available in sizes from 1/50 to 1/20 horsepower, to meet the need for a wide range of applications for quiet, constant speed, lightweight motor drives, in adding machines, calculating machines, check endorsers, typewriters, etc.; equipped with rotating contact or hinge type governors, or may have supporting arms for special type governors. **Department 7-N-20, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.**

BETTER PIPE ECONOMY—

Folder—announcing the Clow-National \$1,000 "Abetter Pipe Economy" Contest, open only to those engaged in the design, installation, operation, maintenance or repair of water distribution systems, water treatment plants or sewerage disposal plants; folder is illustrated and shows new developments in Clow-National cast iron pipe and fittings, as well as prizes to be awarded in the contest. **James B. Clow and Sons, Chicago, Ill.**

ELEVATORS, CONVEYORS, CRUSHERS, ETC.—

General Catalog No. 90—replacing the former No. 50 and No. 74 catalogs, giving complete details of Bartlett-Snow elevators and conveyors, chains and sprockets, crushers, gates and miscellaneous equipment, 372 pages. **The C. O. Bartlett & Snow Company, Cleveland, Ohio.**

BAILEY METER CONTROL—

Bulletin 107-A—Illustrated, devoted to the Bailey Meter Control for Pressure Reducing and Superheating; bulletin presents diagrammatic arrangements, installation photographs and detailed photos of individual control units, while chart records show operation of typical Bailey pressure reducing and desuperheating systems; partial list of installations includes pertinent data for each application listed.
Bailey Meter Company, Cleveland, Ohio.

PROTECTIVE LIGHTING—

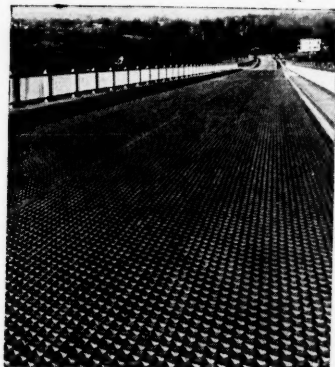
Bulletin—"Protective Lighting for Industrial Plants," revised to bring up to the minute data on this type of lighting—protection of plants against sabotage and entrance by unauthorized persons, light for night production, etc.
Holephane Company, Inc., 342 Madison Avenue, New York.

WORTHINGTON ENGINES—

Bulletin S-500-B38—Devoted to Worthington Diesel Engines, four cycle-direct injection, totally enclosed, Type DD;
Bulletin S-500-B39, supplementing S-500-B38 and S-550-B15—devoted to Worthington Convertible Engines, Gas Diesel, Types EEX and EEX.
Worthington Pump and Machinery Corporation, Harrison, N. J.

Davison's Textile Blue Book—Marking its 75th year, the Diamond Jubilee Edition of Davison's Textile Blue Book has been issued by Davison Publishing Company, Ridgewood, N. J. Issued regularly since 1866, Davison's Textile Blue Book carries all latest textile mills and dyers' reports, new names, new addresses, new markets and new places to buy. This edition contains 1400 pages, is cloth bound and thumb indexed, presenting a complete register of the entire textile trade. It carries reports on 2435 cotton mills (spinners, weavers, braiders), 942 woolen and worsted mills (spinners, weavers), 153 carpet and rug mills, 1101 rayon and silk mills, 2557 knitting mills, 5140 cotton merchants, including buyers, shippers, exporters and brokers of the United States, 2050 cotton merchants, foreign arranged by countries, and many other classified branches of the industry. A section is devoted to the Diamond Jubilee feature of the publication, with a brief history and other interesting information. The deluxe office edition is priced at \$7.50, and the thin paper handy edition at \$5.00.

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usefulness. Smoke is made up of particles so minute that a screen fine enough to catch them would not allow air to pass.

- *Yet the Precipitron takes smoke out of the air as if by magic. The principle employed is simple. Every incoming particle of smoke, dust, dirt, and pollen receives a positive electrical charge. Then a negatively charged plate, acting like a magnet on steel filings, draws these particles out of the air stream.*

- *We knew that there was a need for the Precipitron, but we hardly expected it would find so many uses as to open up an entirely new industry for us.*

- *For instance, in textile mills the Precipitron is removing smoke and soot from the air for the dryer and spinning rooms. In telephone exchanges it is protecting the tiny, delicate relays that operate the dial telephone system. In steel mills it is cleaning the ventilating air for main-drive motors and motor generator sets. In hospitals it is safe-guarding recovery wards and operating rooms.*

- *In all buildings where installed, it is reducing cleaning and redecorating costs. One store which used to repaint every year now finds it need do so only once every three years. Displays stay fresher; merchandise retains its original sales-appearance. Food-processing plants, chemical and testing laboratories find the Precipitron invaluable. Night clubs now boast of having cleaner air than that outside.*

- *Right now Westinghouse Research Engineers are working on many other difficult projects. We hope a lot of things like the Precipitron will result.*

- *Several years ago one of the most interesting experimental devices in our research laboratory was one that acted like a magnet on smoke, dust and dirt in the air. Strange part about this electric device was that it worked just as quietly and free from moving parts as a storage battery. Yet in practically no time at all it would collect a jar full of dirt from air you'd declare was clean and pure.*

- *Today, that device is known as the Precipitron* and we're having a busy time filling orders for it. That's easy to understand once you appreciate that the great American smoke problem alone costs business, home owners and taxpayers millions of dollars each year. But smoke is only one of innumerable air-borne impurities such as dust, dirt, pollen and other substances.*

- *The way the Precipitron rids the air of smoke is an interesting example of its practical efficiency and*

*Registered Trademark

Labor and Industry in War

(Continued from page 32)

sued compelled all women who were either being employed for the first time or were changing their employment to undergo one year of agricultural or domestic service or two years of nursing. This was the final of a series of decrees regulating female labor.

Shortly thereafter, all German youths who completed their schooling on April 1, 1938, or after, were required to register at the employment offices. At the same time, all people under twenty-one years of age were required to report regularly to the same offices. The final step in government control was taken on March 1st of that year, when the Labor Trustees, of which there are thirteen throughout Germany, were given complete dictatorial power over all laborers. They were given the right to say when, where, and if each and every individual in the state was to be employed. It may be seen readily that this not only gave the government control over labor, but also over employers, as they were unable to get labor of any kind without the government's approval.

A regulation which became effective on July 1, 1938, required all Germans, citizens and otherwise, regardless of class, sex, or creed, to devote a portion of their time to the performance of certain urgent

government tasks or to undergo vocational training as prescribed by government officials. It was decreed that this should not result in any loss of privileges, wages, or rights to laborers, but the government took no responsibility for losses, damages, or inconveniences resulting from those drafted being placed in occupations other than their normal ones. This temporary measure was made permanent in 1939, and placed labor conscription for an indefinite period under the authority of the Employment Service and the Unemployment Insurance Office.

Supplementary to this decree was one issued the following month, which placed the regulation of wages and all changes of employment in the hands of the State labor office. The primary purpose of this was to prohibit certain enterprises from enticing skilled labor from other, more important pursuits by offering higher wages.

It may be seen that one of the main objectives of the German government has been to increase production by means of lowering production costs. Mass production has accounted for a partial attainment of this goal, but there remained the all-important matter of wages. The payroll has amounted to anywhere from twenty to fifty per cent of the total production costs of various enterprises, and this factor has contributed heavily to the many wage regulations. According to the

last reports from Germany, in most labor districts the maximum wage rate is set at ten per cent above the minimum as laid down in the wage codes. The average wages in 1937 ranged from averages of thirty-one cents an hour for male skilled labor to between seventeen and eighteen cents an hour for female unskilled labor.

There have been many high officials in Germany who have advocated that private and public employment be placed on the same basis as employment in the army, as far as wages are concerned. This would mean that the money paid to employees would be at a very low level, and perhaps nonexistent, with the government providing the necessities of life and whatever luxuries and amusements deemed advisable. It is believed that this method is actually being used at the present time in certain industries.

There has been a scarcity of news on labor conditions since the start of the war, but from what has been learned, it would seem, as is only natural, that government regulations are even stricter and more severe than before. In many cases working hours have risen to sixteen a day, yet wages have been cut. The legal attachment of laborers to their employers—forced labor—still remains in effect, although the government has promised to investigate each case. Although the Nazis have been successful in wage fixing, they

(Continued on page 60)

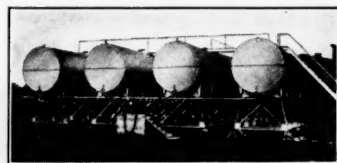
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A 200,000 Galloner!



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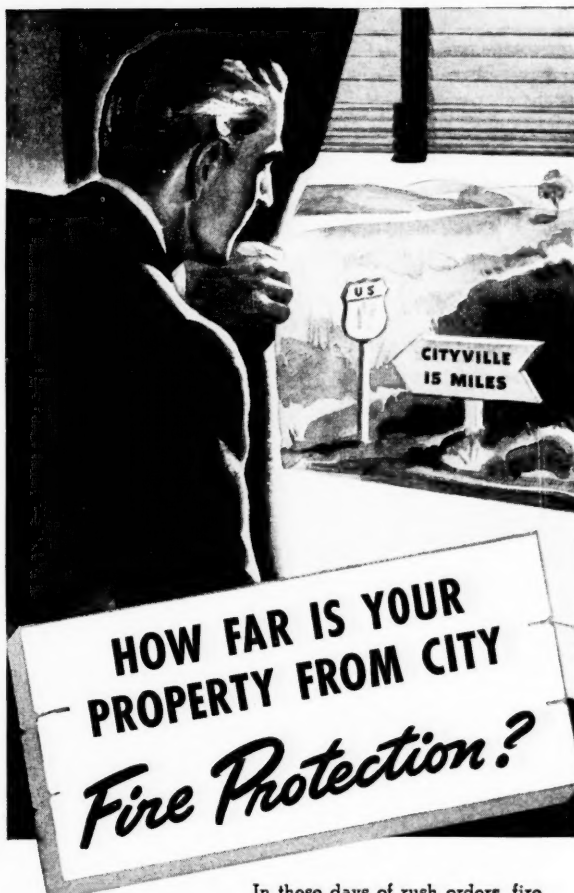
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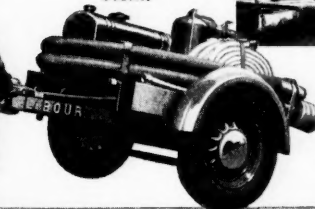


In these days of rush orders, fire protection becomes doubly important because an insurance check has no immediate productive capacity. To supplement sprinkler systems and other protective measures, the LaBour Fire Trailer constitutes an independent fire fighting unit. It carries its own engine and will pump from pond, stream or cistern; "high line" or boiler failure cannot stop it, a wrecked tank tower or broken water lines cannot make it ineffective.

One man can move it about, yet it carries 500 feet of hose and will deliver 150 gallons per minute against 100 lbs. pressure. Gets into action in a few seconds—no need to wait for city apparatus to travel long miles while fire makes headway.

Send for full details—now, before you wish you had.

THE LABOUR COMPANY, Inc.
1571 Sterling Ave.
Elkhart, Indiana
U.S.A.



When necessary, a lone man can use the LaBour Fire Trailer effectively. Once the engine is started, the pump primes itself and maintains pressure and volume as needed without attention.

LABOUR FIRE TRAILER

Labor and Industry in War

(Continued from page 58)

have not been so fortunate in price fixing, as prices of necessities now are considerably higher than in the pre-war period.

At the beginning of the war, production fell off sharply. This is thought to have been due to sabotage, exhaustion on the part of the workers from overwork and undernourishment, the wearing-out of industrial machinery, or a combination of the three. The government, of course, has been taking stern action with regard to known or suspected saboteurs.

Thus may be seen the various methods with which Germany has combatted her labor difficulties. The country is handicapped in the manufacture of many war materials by technical inadequacies and shortages of skilled labor. In view of these difficulties, and of the size of the total population, it may be truly said that the production since 1933 of war materials and everyday needs of the German labor supply has been amazing.

Originally the Nazi spokesmen were loud in their denunciation of the Marxian belief of communal production, and vouchsafed freedom for private enterprise. Theoretically, that contention still exists, but with government control of labor, wages, industrial production, consumption and price of raw materials, and excessive taxation of profits, private en-

terprise as such is virtually non-existent in Germany today.

Expansion of Nashville's Airplane Plant

(Continued from page 31)

trainers or basic combat planes are among the military craft produced by the company.

A certain degree of secrecy is being maintained regarding military contracts and officials of Vultee are not ready yet to announce just what type of plane will be made at Nashville nor the exact number that will be turned out daily. Suffice to say that they will be fast, hard hitting and effective war machines that will be produced with the speed of American initiative made possible by the most modern type of equipment and a perfectly designed plant.

Approximately 7,000 employees will be on the pay roll at the Nashville plant when it gets into full operation. At least that is the estimate at the present time. But the millions of dollars of orders now on Vultee's books, the imperative need for fighting planes and the careful provision, on the part of the architects and engineers, for expansion of the Nashville plant would indicate eventually an increase in this figure.

Carloads of equipment are coming into Nashville as the company is retooling its

present plant and getting ready for installation of machinery as fast as sections of the new building are ready. Some idea of the size of the operation of the Nashville plant is conveyed by preparations being made for installing a hydraulic press, weighing 110 tons, which will have a 2500 ton capacity. Another hydraulic press will have a 750-ton capacity.

Richard W. Millar, president of Vultee Aircraft, Inc., in commenting recently upon the acquisition of the Stinson plant said:

"Nashville offers aircraft manufacturers outstanding facilities—the airport serving major airlines to provide rapid transportation to other points; the ample power supply provided by TVA; facilities of Nashville's recognized educational centers for research development and for training of personnel. These exceptional resources together with its strategic location within the so-called defense zone makes Nashville an ideal location for the production of military aircraft."

Marr & Holman, well known Nashville architects who have built many commercial and public buildings in the South, are associated with Gordon B. Kaufmann of Los Angeles as architects. Holmes and Narver, Los Angeles, are consulting engineers on the project.

The Ford J. Twaits Company of Los Angeles, is handling the general contract and sub-contracts are being awarded largely to Nashville firms. H. D. Carlson is project manager for the Twaits organization.

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Monovent provides continuous air outlet over the entire length of a building more effectively than with any unit type ventilator and at one-third less cost. Provides against back drafts. Presents finer architectural appearance. Fits any type roof, slope, deck or built up curb—any pitch. Made in practically all metals. Easy to install.

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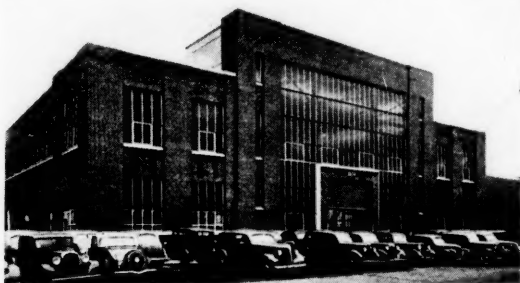
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Also used with excellent results for skylights, mar- quises, canopies or wherever daylight is needed.

Our Engineering Service Department will be glad to aid you on your daylighting problems. Write or wire.

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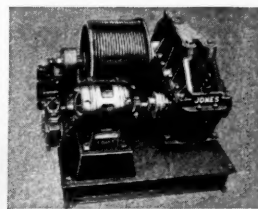


NOVEMBER NINETEEN FORTY

BUILT for the JOB!

HERE are three views of Jones Herringbone Reducer units that were built to meet special requirements and unusual service conditions. They are typical of many modifications that have been made of Jones Herringbone Worm and Spur Gear Reducer units for a wide variety of industrial applications.

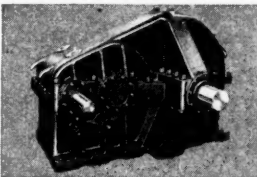
Along with your requirements for standard drives the Jones organization offers a broad service on special drive units.



● A locomotive coaling station equipped with a Jones skip hoist unit. These skip hoists are built as complete units by the Jones organization.



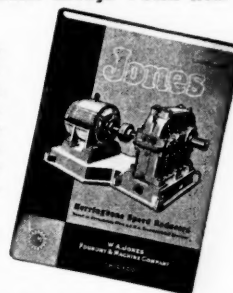
● This hydraulic dredge has Jones Herringbone Reducers for driving the cutter head shaft and the drums.



● An oil field pumping unit driven by a special Jones double type Herringbone Reducer through V-Belts from a gas engine.

Both standard and special applications of Herringbone Reducers are covered in this Jones Catalog No. 70. Technical information shows how to select reducers for all conditions of service in accordance with the A.G.M.A. recommended practice.

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to send you a copy.**



W. A. JONES FOUNDRY & MACHINE CO.
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HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES
ANTI—FRICTION PILLOW BLOCKS • PULLEYS
FRICTION CLUTCHES • TRANSMISSION APPLIANCES

Observations on Unemployment

(Continued from page 30)

has been receiving more than the minimum wage.

Unorganized labor is something else. In our line we have a great many transients. During certain seasons of the year we employ a number of farmers who can spare a few days at a time. They want and need the work. They are not as efficient as the men regularly employed, but we oftentimes need their services, yet can scarcely afford to pay them the minimum wage.

When this mill re-started operation last April, more than one hundred and fifty men applied for work. Most of them had been unemployed for months, they were not the type to join the WPA. Their appeals were pitiful. They would have been willing to work for any wage we would have offered. We had to explain to them that we could not afford to pay the legal minimum wage to inexperienced men, consequently we used about one out of five who applied. Briefly, the wage and hour act is nothing but a hindrance and an annoyance, and an impossible handicap to those of us in forest production and many other lines of reasonable employment. Certainly the hour and overtime provision should be entirely eliminated.

Industry might in time adjust itself to the minimum wage. However, if we expect to maintain any foreign trade, especially after this war is over, we must meet foreign competition. We can only meet that by lowered costs, and that cannot be done by increasing wages and limiting hours, and by imposing other impossible conditions on producers and manufacturers. Profit and labor must each bear its share of the burden.

Any intelligent employee will tell you that the wage and hour law is both a social and an economic liability.

The wage and hour Administrator states that wages and hours in France, where they had a forty-hour work week, had nothing whatever to do with the military collapse. Yet France had become painfully cognizant of the tremendous progress made in Germany, in building up its war machine, without any regulated wage or hour provision, but by simply "Working from one night to the next."


President Roosevelt states emphatically that, regardless of military necessity, we MUST retain all of our (?) "Social Gains." Is that smooth politics, or does he really mean it? "Necessity (especially military necessity), knows no law." Even the Constitution "Imposes no limitations on the powers of self preservation." If, as many of us think, we are facing an emergency before we are reasonably prepared for it, are we going to continue to work about half time, and be

compelled to loaf the other half, and "Fiddle while Rome burns"? If that is to be our unalterable policy in the industrial field, how about the soldiers, sailors and fliers? It is a poor rule that does not work both ways. If Mr. Roosevelt is really sincere, then we might just as well invite Hitler to come on in and take charge. We would only be swapping a leader who does not know definitely what he wants to do, and indifferent to what the American people want, for a dictator who knows very definitely what he intends to do, whether we like it or not.


From a domestic standpoint, we are short today approximately ten million homes. We are informed that some ten to twelve million people are still out of employment. There has never been a time when there was so much money available, or so easily obtained for construction, yet who is going to construct when building costs reach a figure where the possible rental income insures 3% to 4% on the investment above taxes, insurance, upkeep and depreciation. There has never been a time when so many men were out of employment, and so much that needs to be done. There has never been a time when that number of men, or more, has been out of employment for a ten year period.

It should be obvious to all that this New Deal legislation, to a considerable extent, needs to go into the political scrap heap.

(Continued on page 64)



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THE F.E. MYERS & BRO. CO.
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PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

Observations on Unemployment

(Continued from page 62)

It is just as obvious that many of the remaining acts need to be revamped, modified and renovated, to reconcile with the country's actual needs. The writer would venture the statement, if this be done, and industry released from these impositions and handicaps, that inside thirty days improvement would be noticeable, and that inside of one year, the problem of unemployment would be negligible. This would also imply that the government would actually cooperate with constructive legislation toward a gradual and orderly reduction in the number of men now on the rolls of WPA. The standard of wage on WPA should be reduced to a point below the current community wage, to the end that there would be no incentive for men to quit private employment to become public charges.

This country, in the past, has not emerged from depression by raising wages and prices, and by cutting production. During the panic of 1893, relief funds were raised by local bond issues, and every man who wanted to work received a dollar every evening. That dollar, at that time, bought more food than three dollars will today. Therein lies a thought that is hard to drive home to the average working man: That it is not his

gross wage that counts in the final accounting, but how much of that wage is required to maintain his family, or himself.

We have men right here now, who have quit the coal fields, where the hourly wage is 63c to 65c per hour, and claim they are better off here at 30c per hour. The reasons given are that they have only two or three days work weekly, that board costs them from \$30 to \$40 per month, against our charge of 75c per day as a maximum charge (and less if actual cost should be less), that they have to pay \$1.25 per sack for flour that can be bought here for from 65c to 75c, and other store charges proportionately high. They have excessive doctor bills and regular union monthly dues, and *special union* assessments levied against them. They can not understand these "Special assessments," but they dare not complain. They are barred from employment unless they are union members; they would be dropped from the union if they demurred paying the "dues." I wonder if the mine union is not killing "the goose that lays the golden egg"?

All that industry asks is an opportunity to swap the "New Deal" for a "Square Deal."

The writer believes that there is a large majority of thinking Americans who will subscribe to an editorial in the MANUFACTURERS RECORD of July 1940:

"There is a limit to the ability of even the richest country in the world to pay the huge sums that are being voted and keep up with all the wild spending that has been going on. It is a safe bet that half the bureaus in Washington could be thrown out, with their tens of thousands of employees, and the country would be better off, even without counting the vast amount of money that would be saved."

South's Advantages Recognized by Leading Industrialists

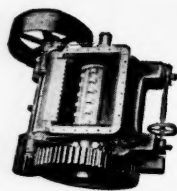
(Continued from page 24)

consumption and appeal.

Our products are designed for use by all business and industry, the professions and even the homes. There is no section or country for which they are particularly aimed. Because of this standardization we are best able to assist all, to concentrate our efforts in all directions and to endeavor to fulfill the demand with the highest quality products available.

During the past years we have expanded our outlet facilities in certain sections of the country as dictated by the demand for our machines. In reviewing the directory of our organization, I find that we have had more expansions in the South than in any other section of the country.

The South is growing as an industrial center, and any manufacturer of quality merchandise in any part of the country should grow with it.



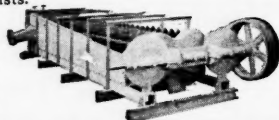
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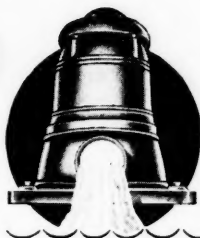
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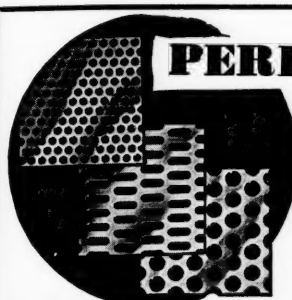
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Southern Contracts Pass Billion Dollar Mark

(Continued from page 45)

ported as having made an award, announced that it will probably be some months yet before work is started.

Among the South's other industrial ex-

South's Construction

(By States)

	October, 1940 Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Ten Months 1940
Alabama	\$19,107,000	\$11,265,000	\$54,797,000
Arkansas	434,000	1,753,000	19,240,000
D. of C.	6,310,000	31,415,000	44,535,000
Florida	6,563,000	28,148,000	98,951,000
Georgia	8,764,000	12,903,000	64,121,000
Kentucky	2,781,000	31,744,000	22,149,000
Louisiana	1,826,000	23,145,000	51,902,000
Maryland	17,647,000	27,722,000	99,567,000
Mississippi	3,284,000	8,339,000	38,616,000
Missouri	2,654,000	42,728,000	38,176,000
N. C.	6,118,000	26,578,000	47,054,000
Oklahoma	3,825,000	3,871,000	19,177,000
S. C.	8,532,000	21,609,000	35,862,000
Tennessee	20,817,000	5,471,000	59,732,000
Texas	21,319,000	72,889,000	176,255,000
Virginia	57,649,000	555,331,000	139,488,000
W. Va.	26,819,000	2,378,000	52,050,000

\$214,049,000 \$907,289,000 \$1,061,672,000

pansions during the month were: A \$4,700,000 yard improvement program at Norfolk, Va., for Norfolk and Western Railway Co.; \$2,500,000 rehabilitation program at Chickasaw, Ala., for Gulf Shipbuilding Corp.; award of contracts let under Glenn L. Martin Company's

\$20,000,000 expansion program; \$1,000,000 expansion at Meridian, Miss., for Flintkote Co., Inc.; \$500,000 plant near Batesville, Ark., for Arkansas Manganese Mining Co.; \$250,000 warehouse, Natchez, Miss., for Armstrong Tire and Rubber Co.; \$200,000 shipyard, Rockport, Texas, for interests represented by A. M. Westergard; \$200,000 bus terminal at Greensboro, N. C., for Atlantic Greyhound Lines, Carolina Coach Co., and Greensboro-Fayetteville, Bus Lines; \$100,000 plant at Miami Beach, Fla., for Vogue Laundry and Dry Cleaners; \$100,000 freight depot at Birmingham, Ala., for Birmingham Southern Railway Co.; 42-mile gas pipe line for Magnolia Pipe Line Co., Dallas, Texas.

Educating Education

(Continued from page 41)

in life will be crowded with more and more obstacles that he is not equipped to meet.

But a man poorly prepared will last longer doing his utmost than a man perfectly prepared who has an idle or indifferent attitude.

It has been figured that it takes the average college graduate about a year to get located in a job.

To find and correct the trouble is the problem of our nation.

And when millions of men are out of work and still more millions are on re-

lief, it is an unhealthy, abnormal situation even if it has existed for years.

With the vast area of our country and the inexhaustible supply of material for our minds and muscles, we can meet the situation and solve the problem.

To get a man equipped and on the job so that every man can fly the flag of economic freedom and independence above his own head is not an impossible task for a nation like the United States.

It is a direct challenge to every educator.

Success depends on the character of the individual and his education.

VALVES—

Bulletin No. 144—Illustrating and describing the Howell-Bunger Valve which has found wide application in the field of balanced free discharge, due to its high efficiency and low first cost; of simple design, the valve has a body of welded rolled steel plate and other advanced features designed to permit maximum discharge capacity between the end of the gate and the end of the cone.

S. Morgan Smith Company, York, Pa.

BUDD ANALYSIS OF CHANGES IN

TRANSPORTATION (VOLUME I)—Under the above caption the development of transportation has been carefully traced, by text and illustration, from the time when railroads sold transportation against canal boats and stage coaches to the present time. Citing progress, the publication refers to the fact that twenty months ago the first Budd Sleeper Coach trains went into service between New York and Florida. These stainless steel trains, made by the Edward C. Budd Manufacturing Company of Philadelphia, Pa., have been so successful that by December of this year no less than fourteen will have been put in operation in the Florida service, two operating from Chicago and twelve from New York.

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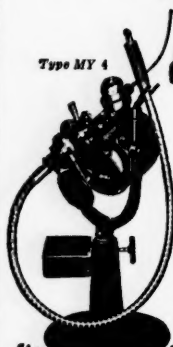
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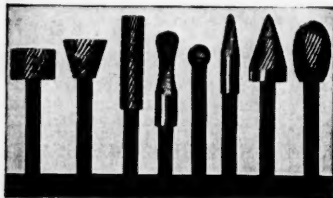
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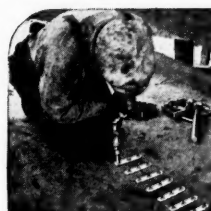
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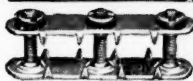
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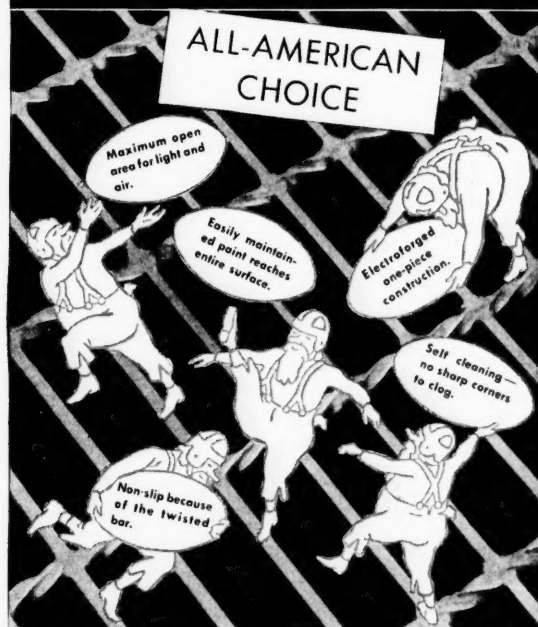
Bulletin F-100 shows exactly how to make tight butt joints in conveyor belts with Flexco HD Belt Fasteners. Also illustrates step by step the latest practice in repairing rips and putting in patches.



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Plastic Sheetings for Lighting Fixtures

(Continued from page 33)

retained, will also have specialized use. Theatre aisle, elevator, staircase exit, and picture frame lights are mentioned.

"Louverglas" lends itself to dust-tight fixtures, a quality which, it is expected, will be especially well utilized in the transportation field.

Since the introduction of "Louverglas" in an experimental way, installations have been made in railroad cars, offices, universities, display rooms, ships, drafting rooms, art galleries, museums, banks, beauty parlors, and elsewhere.

The Norfolk Area and National Defense

(Continued from page 29)

caretaker's classification to a full garrison fort and 50 or 60 million dollars will probably be spent there in the near future to

enlarge and improve it and to modernize the armament.

Altogether things are humming at Norfolk. New families are moving in at the rate of 200 a month; ground has been broken for new theatres; more stores are being enlarged and modernized; another bus terminal to accommodate a million passengers a year will be built on a site extending through an entire block, and the Norfolk and Western Railway will spend several million dollars for additional piers, warehouses and coal cars.

As further proof that things are humming, public schools are overcrowded (30,000 pupils now) and steps are being taken to increase school facilities; the telephone company has been forced to issue emergency orders for equipment, build another exchange and add a floor to its main building; city automobile licenses are 2,000 ahead of last year and still increasing.

It was not until World War No. 1 came on that the Hampton Roads area, includ-

ing Norfolk, Portsmouth and Newport News, gained international prominence as a base of supplies for military and naval forces. Maury's dream came true, for in the early stages of the conflict—long before America became involved—the armies of the world were turning their eyes toward Hampton Roads. The Allies looked to Hampton Roads to ship food, equipment and other things to their millions of fighting men while German submarines which ran the gauntlet of the British Blockade sought Hampton Roads as a harbor.

\$5,000,000 Improvement Program

For the purpose of effecting substantial operating economies and increasing production, The American Rolling Mill Company, Middletown, Ohio, has undertaken an improvement program which will total more than \$5,000,000, according to President Charles R. Hook. The most important item is a four-stand, four-high, 54-inch cold reduction mill at the Armeo plant in Middletown, estimated to cost \$3,800,000 for buildings and equipment. Construction will start at once. Other major items in the program include the construction of 25 additional by-product coke ovens and other improvements at the company's plant at Hamilton, Ohio, to cost \$1,500,000, and a new soaking pit at Middletown.



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Gates, with fool-proof latch bars, ball and socket hinges, built to withstand severe use and abuse. MFRS. and ERECTORS. Agents everywhere. Catalogue. 1620-40 West 31st Street, Chicago, U. S. A.



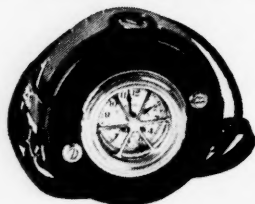
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Send for sample pages

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Defense News From Washington

(Continued from page 28)

Indiana. A close second was the \$11,857,000 contract to the Humble Oil Refining Company, Houston, for construction of facilities to manufacture toluol at a new plant to be known as the Baytown Ordnance Works near the present Humble plant at Baytown, Texas. An analysis of the appropriations of the present session of Congress showed that, as of October 27, Congress has authorized \$13,106,227,930.58 for commitments and direct appropriations in national defense while total commitments for all purposes amounted to \$23,135,740,635.15.

Almost the last contracts awarded in October were two, totaling \$39,500,000, by the Navy for an undisclosed number of airplane engines awarded to the United Aircraft Corporation, Pratt & Whitney Division, East Hartford, Connecticut. In pursuit of the Navy's program to acquire auxiliary ships, Secretary Knox announced the purchase of five 8,378-ton transport ships from the Baltimore Mail Line at a total cost of \$7,100,000, thus bringing the total number of ships in this program, acquired since September 25, to more than 40 at a cost exceeding \$23,000,000 out of a total sum set aside, amounting to \$75,000,000.

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